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Environmental Issues

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UN Climate Conference Compromise on Carbon Dioxide Levels Reported

OW0511081390 Tokyo KYODO in English 0702 GMT
5 Nov 90

[Text] Geneva, Nov. 5 KYODO—A United Nations climate conference would abandon a common worldwide target for cutting global warming carbon dioxide emissions due to international conflicts of interest, Japanese sources said Monday.

The second world climate conference, which opened here on October 29, dealt with a statement from scientists meeting under its auspices claiming that positive action, especially by industrialized nations whose carbon dioxide emissions contribute 75 percent of the total, could have an effect on overall global reduction. The statement said such nations could cut their carbon dioxide emissions by 20 percent by 2005.

But since the 100-nation conference has also scheduled discussion by government ministers and officials for November 6-7, it would not officially accept the experts' claim and would instead merely call for a carbon dioxide stabilization program by 1992, Japanese sources attending the meeting said.

The meeting would also adopt a declaration that would combine three conflicting arguments, the sources said.

For nations like the United States, which refuse to set a specific reduction target for carbon dioxide emissions, believed to be a major factor in causing a rise in the earth's temperature and sea levels, the conference would merely urge nations to set effective goals.

However, the conference would also welcome the more positive moves by Japan, and the European Community (EC) nations, which have decided to stabilize carbon dioxide emissions in 2000 at the 1990's level.

Thirdly, the final declaration would take account of the "special position" of developing economies or countries including the Soviet Union and East European nations, which face a period of structural transition.

Reaction by the conference to a demand from developing nations that industrialized nations create a new fund to help them in the world climate protection battle would depend on the final outcome of the more politically motivated discussion, although additional financial assistance is to be extended to the developing nations, the sources said.

The Japanese sources said Japan would likely approve the contents of the conference declaration due November 7, but said the EC nations might refute any compromise that weakens a combined effort against global warming.

Thatcher Calls for Global Effort on Greenhouse Effect

LD0611101890 London PRESS ASSOCIATION
in English 0936 GMT 6 Nov 90

[By Amanda Brown, PRESS ASSOCIATION environment correspondent, in Geneva]

[Text] The world must unite in a global effort to save itself from the potentially "disastrous" effects of the greenhouse effect, Mrs. Thatcher said today. In a speech at the official opening of the Second World Climate Conference she told heads of state and ministers from more than 100 countries that scientific evidence already showed there was a clear case for international action. It was an immense challenge.

"The prime minister said climate change may be less than predicted, or it could happen more quickly than computer models suggested. "Should this happen it would be doubly disastrous were we to shirk the challenge now," she told the conference in Geneva. A joint international effort to curb greenhouse gasses was very important.

There was little point in action to reduce the amount of carbon dioxide being put into the atmosphere in one part of the world if it was promptly increased in another. "Targets on their own are not enough. They have to be achievable. Promises are easy. Action is more difficult. For our part, we have worked out a strategy which sets us on the road to achieving the target," she said.

Mrs. Thatcher stressed that precautions countries needed to take to reduce the effect of warming gasses on the atmosphere would be sensible in any event. They would include:

- improved energy efficiency,
- development of alternative and sustainable sources of energy,
- the replanting of forests.

"I see the adoption of these policies as a sort of premium in insurance against fire, flood, or other disaster. It may be cheaper or more cost effective to take action now than to wait and find we have to pay much more later," Mrs. Thatcher said.

Mrs. Thatcher said everyone was aware of the immense challenge, but the enormity of the task was not a matter for pessimism.

She was careful to avoid any direct reference in her speech to a growing rift at the talks between the United States and Europe over the timetable for pegging carbon dioxide emissions from industry and traffic fumes. America has so far refused to name a date for stabilisation, in contrast to the UK, which intends to stabilise at present levels by the year 2005. The rest of the European Community will attempt to achieve the same goal by the turn of the century. The Geneva talks will establish a

framework for a global climate convention to be drawn up at talks in Washington, DC next February.

Mrs. Thatcher said the immediate task in Geneva was to carry as many countries as possible so that a successful framework convention could be worked out. To accomplish these tasks, she urged delegates not to waste time and energy disputing the findings of scientists on the inter-governmental panel on climate change. She stressed [that] the panel's work should be taken as a signpost and that the United Nations Environment Programme and the World Meteorological Organisation were the main vehicles for achieving success.

Mrs. Thatcher said: "We will not succeed if we are too inflexible. We will not succeed if we indulge in self-righteous point-scoring for the benefit of audiences and voters at home. We have to work sympathetically together."

She said it would be absurd to adopt policies which would bankrupt the industrialized nations, or doom poorer countries to increasing poverty. Widely differing circumstances facing individual countries had to be recognised, with the better-off helping poorer nations as had already been agreed under the Montreal Protocol. The differences could not be drafted away in the phrase so beloved of diplomats, "a form of words".

Mrs. Thatcher called for a tolerant and sympathetic understanding of the various positions. Some countries used energy more efficiently than others, while some were less dependent on fossil fuels. "We are in symmetry with nature. To keep that precious balance, we need to work together for our environment. The United Kingdom will work with all of you in this cause to save our common inheritance for generations yet to come."

Mrs. Thatcher, stressing the need for more research into climate change, said it should not be used as an excuse for delaying much needed action. "There is already a clear case for precautionary action at an international level. The inter-governmental panel on climate change tells us that we cannot repair the effects of past behaviour on our atmosphere as quickly and as easily as we might cleanse a stream. It will take, for example, until the second half of the next century, until the old age of my grandson, to repair the damage to the ozone layer above the Antarctic. And some of the gasses we are adding to the global heat trap will endure in the earth's atmosphere for just as long."

Jordan's King Warns of Gulf War Environmental Effects

*JN0611145790 Amman Domestic Service in English
1200 GMT 6 Nov 90*

[Text] His majesty the king has said Jordan feels duty-bound to do all that it could to prevent the outbreak of hostilities in the Gulf region. Addressing the second world climate conference in Geneva today, his majesty said an outbreak in the Gulf region would create an

environmental catastrophe unprecedented since the Chernobyl nuclear power accident. More in the following report:

His majesty the king has said that nearly a million soldiers from Arab and non-Arab countries are confronting each other in the Gulf. The region is also rich in weapons of mass destruction in the hands of emotionally (?false) people, who in a war situation, may not hesitate to use them. The military buildup and political tension both continue to escalate day by day and hour by hour.

Addressing the second world climate conference in Geneva today, his majesty said the confrontation is taking place literally on top of the single richest natural petroleum reservoir in the world, which accounts for over half the world's mineral energy resources. His majesty noted in the speech that war in the Gulf would result in devastating human death and injury, tremendous economic loss, and prolonged political confrontations between East and West. It could also lead to an environmental catastrophe, the likes of which the world has not experienced since the accident at the Chernobyl Nuclear Power Plant, which sent shockwaves around the world and awoke us all to the true meaning of global threat and challenges.

His majesty went on to say that a war in the Gulf could result in the use of chemical and biological weapons and widespread destruction to all fields and all storage depots. His majesty noted that a half of Kuwait's oil reserve or about 50 billion barrels were to go up in flames during a war, the environmental impact would be swift, severe, and devastating. Emissions of carbon monoxide, carbon dioxide, and sulfur dioxide would surpass internationally accepted safety standards, and would blacken the skies over a radius of at least 750 km from Kuwait; that is all of Kuwait, Iraq, Bahrain, Qatar, the Emirates and the waters of the Gulf, and most of Saudi Arabia, Jordan, Syria, and Iran. This massive emission, his majesty noted, would aggravate the green house effect and contribute to global warming, climatic changes, lower global food production, and human and animal health deterioration.

His majesty also told the second world climate conference that if oil production facilities suffer long-term damage, which is likely in the event of war, the catastrophe would be compounded by the devastating impact of the loss of oil imports for economies and peoples around the world. His majesty noted that the catastrophe scenario could be averted if we address the root causes of the conflicts that face us today. His majesty stressed that we must move on quickly to resolve the Arab-Israeli conflict, which if allowed to fester, will continue to be a source of regional and global instability. We also need to address the idea of a Middle East zone of peace free of nuclear, biological, chemical, and other weapons of mass destruction.

His majesty said that Jordan feels a deep responsibility to its own people and to the rest of the world to do

everything in its power to try to avert a disaster in the Gulf. Concluding his speech, his majesty told the conference: In view of the imbalances in global political stability and socioeconomic justice and the enormous threats to the environment from crises such as that in the Gulf today and if our global quest to safeguard our earth is to be credible and effective, it must reflect an appreciation for the broader human political and psychological climate of our earth and its people.

PRC Environment Official Addresses World Climate Conference

*OW0811062890 Beijing XINHUA Domestic Service
in Chinese 0907 GMT 6 Nov 90*

[Text] Geneva, 6 Nov (XINHUA)—Song Jian, state councillor and concurrently minister in charge of the State Science and Technology Commission and director of the Environmental Protection Committee, said here today: The protection of environment and climate is one of China's basic national policies. The Chinese Government and scientists have watched closely the changes in the ecology and climate and, while promoting economic and social development, have strived to protect and improve the environment and actively participate in and support the international community's activities to protect global climate.

The Chinese state councillor made the above remarks this afternoon at the second world ministerial conference on climate. He briefed environmental ministers and senior officials from various countries about the work done by the Chinese Government in protecting the environment and climate.

He said: Despite [words garbled], China has reduced [words garbled] through curbing population growth; launching a mammoth all people's campaign to plant trees and grass; developing such new energy sources as hydraulic electricity, terrestrial heat and wind energy; raising our energy utilization rate; limiting the production and use of materials which destroy the ozone layer and conducting research and manufacturing of substitutes for such materials; and striving to cut down the increase of gas discharged from greenhouses.

Song Jian pointed out: Although it has yet to be proved scientifically, the available data indicate that the speed of changes in climate will be unprecedented during the next century, and that this will affect the social life and production of the whole mankind.

He said: The international community should make a concerted effort in prudently protecting the ecology and climate of the earth for the progress of human civilization and happiness of future generations.

He said: "Environmental protection, which is the common interest of the people all over the world, requires the cooperation of all countries and people. All

countries and peoples should do everything within their capabilities to actively contribute to the protection of environment."

Song Jian stressed in particular that the main factor for the accelerating changes of global climate has been caused by the greenhouse gas discharged and accumulated by the developed countries in the course of their industrialization over the past two centuries since the global industrial revolution.

Meanwhile, he pointed out that it is the developing countries which are most seriously affected by the global climatic change because of their lack of sufficient economic and technical capabilities to protect themselves from and cope with such changes.

Song Jian appealed to the developed countries to appropriate more funds for protecting the environment and climate and compensate for the economic burdens on the developing countries, which have been caused by climatic changes. [words garbled]

PRC Official on Developing Nations Role in Global Warming

*OW0211054290 Beijing XINHUA Domestic Service
in Chinese 1548 GMT 1 Nov 90*

[By XINHUA reporter Shi Guangyao (2457 0342 5069) and GUANGMING RIBAO reporter Zhan Shu (1455 5289)]

[Excerpts] Geneva, 1 Nov (XINHUA)—Global warming is an important strategic issue in mankind's social and economic development. This is a fact specifically mentioned by Zou Jingmeng, director of the State Meteorological Administration and executive chairman of the World Meteorological Organization, in an interview given during the Second World Conference on Climate in Geneva, over which he presided.

Zou Jingmeng said: The meeting was held against the background of increasing scientific understanding of climate changes and their impact. More than 500 scientists from over 100 countries attended the meeting. Heads of many countries and governments and ministers from more than 80 countries will attend the second phase of the meeting—a ministerial level meeting. The meeting will give impetus to the study of a corresponding policy on climate change and its influences and provide important data for the convention on global climate expected to be signed at the United Nations Environment and Development Conference in 1992. [passage omitted explaining greenhouse effect]

On the reasons for the greenhouse effect and global warming, Zou Jingmeng said: Many leaders of advanced countries have clearly noted that these problems were caused by industrialization in advanced countries over the past 100 years. Their countries bear a special responsibility for these problems. Therefore, some advanced countries have proposed that they should be more

responsible in terms of alleviating global warming and reducing the release of greenhouse gases. This is an intelligent act.

As for developing countries, they are currently faced with the urgent need to eliminate poverty, develop their economies, and protect the environment. It is understandable that they prioritize eliminating poverty, improving people's livelihoods, and developing their economy. In the meantime, more and more developing countries are paying more attention to environmental protection problems. It is reasonable for developing countries to ask industrially advanced countries to provide necessary funds to help them avoid following the disastrous road taken by developed countries and transfer to them, under noncommercial preferential conditions, modern technology which will help economize in energy consumption and reduce the release of toxic pollutants.

In terms of environmental protection work in China, Zou Jingmeng noted that the Chinese Government has been paying great attention to this problem. China is active in the international environmental protection campaign and has made environmental protection its basic policy.

Beijing Symposium Examines Global Resources, Environmental Crisis

*OW1011165590 Beijing XINHUA in English
1448 GMT 10 Nov 90*

[Text] Beijing, November 10 (XINHUA)—Some 80 leading Chinese scientists met at a symposium here today to discuss the world's resources and environment problems.

The Beijing Symposium on Planetary Emergencies, which began here today, is sponsored by the China Center of Advanced Science and Technology (CCAST), an institute directed by leading American physicist professor Tsung-Dao Lee and president of the Chinese Academy of Sciences prof. Zhou Guangzhao.

Topics to be raised at the symposium include energy, climatic changes, food, soil and water.

Addressing the opening session, Zhou said that problems affecting resources and the environment have become the major factors restricting the country's future development.

Scientists are faced with the challenges of reducing human damage to the environment and making resources meet the demands of the increasing population by means of science and technology, Zhou said.

Lee said that the global crisis has to be dealt with on an international basis.

As the world's most populous nation and one of the developing countries, Lee said, China has long had to struggle against various manmade and natural disasters.

Chinese scientists "have to shoulder the great burden of devising novel and indigenous approaches to these serious problems", he added.

According to CCAST, the symposium is part of the preparations for the international workshop on planetary emergencies, which will be hosted by the World Laboratory of the International Center of Science and Culture in Italy next August.

International Conference on Offshore Dumping Ends in London

*OW0411052390 Beijing XINHUA Domestic Service
in Chinese 1200 GMT 3 Nov 90*

[By reporter Wang Guorui (3769 0948 3843)]

[Text] London, 2 Nov (XINHUA)—The 13th Consultative Conference of Signatories to the Convention on Preventing Ocean Pollution by Offshore Dumping and Discharges was held in London from 29 September through 2 November.

Representatives and observers from more than 60 countries and international organizations attended the meeting. They discussed problems such as the disposal of radioactive wastes in the ocean, the burning of wastes in the ocean, the transportation of dangerous wastes from one country to another, and environmental protection of the oceans.

The meeting adopted two resolutions that prohibit the dumping of industrial wastes into the ocean and the disposal of nuclear waste on the ocean bottom by the end of 1995.

At the meeting, the Chinese representative explained China's position on protecting the oceans and presented China's achievements in that area.

Australia, New Zealand To Enforce Driftnet Ban

*BK0311051590 Hong Kong AFP in English 1304 GMT
2 Nov 90*

[Text] Canberra, Nov 2 (AFP)—The Australian and New Zealand Air Forces will carry out joint operations over the Tasman Sea for the next five months to enforce a ban on driftnet fishing, it was announced Friday.

Australian Prime Minister Bob Hawke said in a statement here: "The surveillance flights are further indication of Australia's commitment to rid the South Pacific of driftnetting fleets."

The programme of flights by P-3 Orion aircraft will last until the end of March and will be carried out in coordination with the fisheries agency of the 15-nation South Pacific Forum.

Heads of government agreed at the forum's annual meeting in 1989 to ban driftnets—fine-mesh nylon nets

dubbed "walls of death" because they scoop up all forms of marine life across a path up to 50 kilometres (35 miles) broad.

The flights will provide forum members "with important data on the frequency and range of driftnetting activities," Mr. Hawke said.

Japan, the main driftnet user, has agreed to abide by a UN resolution calling for a ban in the South Pacific.

Nordic Plan To Help Combat Eastern Europe Pollution Reported

*PM0211110590 Moscow IZVESTIYA in Russian
31 Oct 90 Union Edition p 4*

[Own correspondent V. Shmyganovskiy dispatch: "From Words to Action"]

[Text] Helsinki—There has been a meeting of environment ministers from the Nordic Council countries (Denmark, Iceland, Norway, Finland, and Sweden), along with the USSR and representatives of Eastern Europe. The aim was to organize cooperation in environmental rescue work—particularly in the sphere of funding and technology transfer.

It is this element that I would like to stress: The peoples of the North are moving on from discussing and admonishing their geographical neighbors over the vast scale of the pollution on their territory to joint projects for which they are prepared to give material backing in view of the economic difficulties experienced by the former socialist camp.

"The idea for the present meeting emerged at the Nordic Council sitting this March in Reykjavik," said Finnish Environment Minister Kaj Barlund. "It was then decided to set up NEFCO—a northern corporation financing investment aimed at improving the state of the natural environment in Central and Eastern Europe."

The association has been founded for six years and started up in October. Its initial capital totaled \$50 million. Its sphere of action embraces mainly Hungary, Poland, the CSFR [Czech and Slovak Federal Republic], and the Soviet Union.

"The GDR was also on this list," K. Barlund pointed out, "but we now hope that mighty German capital will solve the problems on what was GDR territory."

Let us recall that the territory of the Nordic Council countries totals 1.6 million square kilometers. That is almost three times the area of France—the largest state in Europe after the USSR. However, these areas have a population of only 23 million people (300,000 square kilometers of Greenland, which comes under the protection of the Danish crown, are totally uninhabited).

Is there any need to say that the natural environment in the North is particularly afflicted? Whatever steps are taken by the peoples and governments, acid rain and

other rain nullifies all the efforts. As aerial pollution specialist Lars Lindau reported, more and more black lakes are appearing on Sweden's environmental map, for instance. You cannot swim or fish there....

"As for the depletion of the ozone layer, which protects us all," the scientist said, "it will, alas, continue even if all hazardous production units were shut down tomorrow..."

"Nature can withstand a temperature increase of 0.1 degrees over 10 years," Lars Lindau said, "but no more. The situation is now such that the results of man's activity take the form of this burden on the environment, a burden that it cannot cope with..."

A great deal can be said about our concern for the natural environment and "theirs." L. Lindau cited just the following fact: Over the last 10 years emissions of sulfur dioxide—the main substance that produces acid rain—have dropped 40 percent in the West, but only 10 percent in Eastern Europe.

"That is why the Northern countries are ready to fund nature conservation projects outside their borders," explained Norway's representative, Oddmund Graham. "The main condition being to ensure that these projects are directly in our interests too. This is not humanitarian support. We are no more selfless than anyone else. However, all the Northern countries will suffer if we do not solve your problem."

So, the Nordic Council is not about to engage in philanthropy. The allocation of credits and aid with the latest technology represent an expansive gesture of friendship at the present difficult time for Eastern Europe. Loans can, after all, be granted for even 20 years!

The scale of the plan in the region has even surprised transatlantic observers. The American press writes that thousands of water purifying enterprises will have to be set up and existing ones radically restructured in order to implement the "Clean Baltic" project alone.

Many people here think that the present conference was overshadowed by news of the underground nuclear explosion in the region of Novaya Zemlya. The Northern countries have already expressed their concern at the resumption of testing near their borders.

It was envisaged that the Treaty on Financing Concrete Nature Conservation Projects would be signed on the final day of the conference's work—30 October. Kaj Barlund pointed out that the fact that representatives of financial institutions and leading private companies and political decision makers met together for possibly the first time to resolve international environmental problems undoubtedly facilitates the prompt resolution of these questions.

Baltic Countries Agree on Environmental Cooperation*LD2910215890 Helsinki Domestic Service in Finnish
1600 GMT 29 Oct 90*

[Excerpt] Environmental cooperation among the countries around the Baltic Sea was strengthened today, when the countries' environment ministers approved a joint statement in Helsinki. There will be pressure for the new cooperation right from the start, because within a few weeks, the Soviet Union intends to request subsidies for its particularly polluting industries. Jaana Kanninen reports:

[Begin Kanninen recording] About 130 ministers and other representatives of the countries around the Baltic Sea are in Helsinki today and tomorrow. The aim is to strengthen the transfer of environmental technology from the Nordic countries to the former socialist countries of East Europe, as well as to inspect the ventures in practice. The ministerial meeting today approved a joint, very vague statement, basically in support of environmental cooperation. The vehicle for the new cooperation is the newly established environmental funding enterprise, which will work in conjunction with the Nordic Investment [as received]. The meeting approved its first two joint ventures yesterday, which it intends to support. They are both in Poland. [passage omitted] [end recording]

Finnish Research Vessel Attempts To Analyze Leningrad Waters*LD0511222890 Helsinki Domestic Service in Finnish
1600 GMT 5 Nov 90*

[Text] [Announcer] The oceanographic research vessel Aranda is not yet able to go examine the waters in the Leningrad region. Aranda left for the Gulf of Finland and the Baltic Sea at midday to collect water samples. In this connection it was intended to examine the effects of the Leningrad Barrier on the Gulf of Finland. Just before the vessel departed, however, the Soviet Union asked for additional information on Aranda's plans. The research permit which was applied for more than six months ago has not yet been granted to the scientists. According to Matti Perttilae, the leader of the expedition of the oceanographic vessel Aranda, the uncertainty about the research permit does not prevent the acquisition of information on how much the Leningrad area burdens the Gulf of Finland.

[Begin Perttilae recording] We have a reserve plan, according to which we will carry out this work in cooperation with Estonian and Leningrad scientists. We will meet the Estonian research vessel, Arnold Veimer, in the middle of the Gulf of Finland and, depending on the permit situation, we will then make new plans. If Aranda is not permitted to enter Soviet waters, then this Estonian vessel Arnold Veimer will take samples as far as possible. If they cannot analyze everything themselves,

we will then get samples from them, and thus at least a large part of the plans can be carried out. [end recording]

[Announcer] According to Professor Matti Perttilae the biggest problems caused by the Leningrad Barrier are in the eastern part of the barrier, for waste is gathering on the inside of the barrier. Aranda will spend about three weeks on the expedition.

Black Sea Antipollution Convention Drafted*LD3010202790 Moscow TASS in English 1731 GMT
30 Oct 90*

[Text] Moscow October 30 TASS—Experts from the Soviet Union, Bulgaria, Romania and Turkey, who met at the Soviet Foreign Ministry, have completed the drafting of a convention on the protection of the Black Sea from pollution.

They have also drafted three protocols providing for measures to combat spills of oil and other harmful substances, prevent the pollution of the sea from land, and regulate the dumping of waste and other materials in the sea.

The sides agreed in principle that a diplomatic conference should be convened early in 1991 to adopt the convention and the protocol.

Soviet Foreign Ministry Spokesman on Black Sea Protection Meeting*LD0111144290 Moscow TASS in English 1436 GMT
1 Nov 90*

[By TASS diplomatic correspondents Aleksandr Kanishchev and Leonid Timofeyev]

[Text] Moscow November 1 TASS—Soviet, Bulgarian, Romanian and Turkish experts have held a conference in the Soviet Foreign Ministry on a convention to protect the Black Sea against pollution and on three protocols to it, ministry spokesman Gennadiy Gerasimov told a briefing here today.

He said the experts agreed in principle that a diplomatic conference to adopt the convention and the protocols should take place early next year. The specific time frame, as well as the venue, will be agreed upon later through diplomatic channels, according to Gerasimov.

He said that the Moscow conference, also attended by representatives of two Soviet constituent republics—Russia and the Ukraine, discussed future cooperation with the UN Environment programme (UNEP) and other international organisations on environmental protection in the Black Sea.

"All participants agreed about the positive outlook for such cooperation," Gerasimov said.

Soviet Oceanographer Urges Cooperation To Save Black Sea

*LD3110220190 Moscow TASS in English 2130 GMT
31 Oct 90*

[By TASS correspondent Andrey Surzhanskiy]

[Text] Moscow October 31 TASS—Recent press reports, alleging that upward currents of water rich in harmful hydrogen sulphide make the Black Sea surface layers very volatile, are without ground, leading Soviet oceanographer Mikhail Vinogradov told TASS.

Thorough research during the past two years have revealed nothing like what the press would like people to believe, he said.

However, there are enough other reasons for worry: the critical state of the Soviet Odessa Bay and the Bulgarian Burgas Bay is very close to ecological disaster. The crisis is caused mainly by pollutants carried by a number of rivers flowing through vast territories of many European countries. The Danube, for instance, flows through eight countries on its way to the Black Sea and accounts for more than half of the total free water supplies to the Black Sea. Waste water discharges from factories, enterprises and cities are deadly poison to sea life, Vinogradov said.

As a result, the number of dolphins in the Black Sea has dropped from 2.5 million to 100,000. Harmful microorganisms proliferate in the coastal areas, making water quality deteriorate dramatically and numerous beaches unsuitable for bathers and swimmers.

Fish stocks have been depleted in the Black Sea and nearly completely exterminated in the Sea of Azov by the new swarming predator—medusa-like “grebnevik”. The total mass of these organisms has reached nearly one billion tonnes. The Black Sea’s northwest shelf is almost bare of useful water plants which used to be processed to obtain preparations capable of removing radiation particles from the human organism.

It is now clear, Vinogradov said, that no country is capable of solving all the problems plaguing the Black Sea on its own. This is why talks are under way to conclude a government convention to protect its waters. Vinogradov recalled that scientists from a number of European countries, who assembled at an ecological forum in October, adopted a declaration on the establishment of an international fund to rescue the Black Sea. “However, we need not only financial resources, but also a reconsideration of our consumer approach to the sea,” Vinogradov said.

Albanian Delegation Pursues Mediterranean Environmental Cooperation

*LD2910235790 Belgrade TANJUG in English
1922 GMT 29 Oct 90*

[Text] Split, October 29 (TANJUG)—An Albanian Government delegation today arrived in the Yugoslav town

of Split on a two-day working visit to the UNEP [United Nations Environment Program] Center for Regional Activities. The delegation said that Albania would accelerate its opening to the world, and pointed to the consequences of the opening and of economic development to the possibility of destroying the environment.

Stressing that Albania was very interested in the experiences of Mediterranean and European countries in environmental protection, the Albanian officials said that their country would not repeat the mistakes of others, but learn from them.

The Albanian delegation is headed by Secretary of the Commission for Environmental Protection of the Council of Ministers Shaban Kamberi. The aim of the visit to Split, the UNEP headquarters in Yugoslavia, is to get acquainted with the experiences of Split and discuss cooperation possibilities.

Albania ratified the Barcelona convention on joining the Mediterranean action plan two months ago, and is now a full member of the association. The Albanian delegation said that their government wants to join the Adriatic initiative which now rallies Italy and Yugoslavia.

UK-Brazil Seminar on Rain Forests Opens in Brasilia

*PY3110233690 Brasilia Domestic Service in Portuguese
2100 GMT 30 Oct 90*

[Text] Brazilian Foreign Minister Francisco Rezek, Environment Secretary Jose Lutzemberg, and Lynda Chalker, British minister for overseas development, opened the first Brazil-UK seminar on the preservation of the tropical rain forest in Brasilia today.

The seminar sponsored by the two governments is being attended by British and Brazilian environmentalists and is aimed at finding ways to make appropriate use of Brazil’s natural resources and recovering devastated areas.

At the opening of the seminar, Minister Chalker read a message from Prince Charles in which he calls attention to the devastation of the environment and stresses the need to recover what has been destroyed and to preserve other areas.

IBAMA [Brazilian Institute for Environmental Affairs and Renewable Natural Resources] President Tania Munoz referred to the importance of the technical cooperation agreements on the environment being implemented by the two governments. [recorded passage indistinct]

Munoz said a document containing the general guidelines of a project for the Amazon region will be released when the seminar closes on 1 November.

More on UK-Brazil Joint Environmental Projects

PY0311152090 Rio de Janeiro O GLOBO in Portuguese 31 Oct 90 p 17

[Text] Brasilia—On 30 October Lynda Chalker, British minister for overseas development, and Brazilian Foreign Minister Francisco Rezek signed agreements to add the final touches to two environment preservation projects which have already been implemented: one in Para State and the other in Pernambuco. In Brasilia Chalker opened the First Anglo-Brazilian conference on Environment Recovery for the Preservation of the Tropical Forest.

Chalker arrived in Brazil on Sunday and went to Recife to learn about the environment pollution control project being developed by the two countries. Great Britain has released \$488,000 for that project, which seeks to strengthen and train state agencies as institutions for training, research, control, and consultation regarding environment pollution.

The other joint project is the installation of the Research Station in Caxiama to facilitate the study of Amazon ecosystems. The Emilio Goeldi Museum, Para State, will receive \$2,704 for this project.

Minister Chalker said her country intends to support a number of research projects in Brazil. She said that those projects will join British and Brazilian technologies and that Great Britain will invest 4 million pounds sterling.

EC Funds To Aid African Rain Forest Preservation

91WN0033B Paris AFP SCIENCES in French 4 Oct 90 p 38

[Unattributed article: "EEC Financing Preservation of Africa's Rain Forest"]

[Text] BRUSSELS—The European Commission announced in Brussels on October 1 that the EEC will be donating 24 million ECU's (31.2 million dollars) to seven Central and West African countries to assist them in preserving their rain forests.

The African rain forest is the largest in the world after the Amazon rain forest, and is also the nearest to Europe, explained the EEC executive board in a press release.

This subsidy, the largest the EEC has ever made to an environmental protection project outside the Common Market, will be divided among seven countries: Cameroon, the Central African Republic, the Congo, Equatorial Guinea, Gabon, Zaire, Sao Tome, and Principe. In June, the seven nations developed a joint plan of action to promote the development of economic activities compatible with the preservation of their rain forest.

Brazilian Court Orders U.S. Nuclear Submarine To Leave Port

PY0511181190 Rio de Janeiro O GLOBO in Portuguese 4 Nov 90 p 2

[Text] Recife—Roberto Wanderley, the judge on duty at the First Federal Jurisdiction Court, in the predawn hours of yesterday morning granted a preliminary injunction on the request filed by the Nature Defense Association of Pernambuco to the effect that the U.S. nuclear-powered submarine USS Greeling must leave port. This submarine is participating in the UNITAS [United International Antisubmarine Warfare] Task Force. The other participating units are now docked in the Recife port. Following this judge's ruling, the submarine will have to leave the 200-mile Brazilian territorial waters.

The judge also ordered that if the submarine does not comply with the injunction, a fine of 10 million cruzeiros per day will be levied. This money will go to finance environmental protection projects.

This is the first time that a Brazilian judge has ordered a foreign ship to leave Brazilian waters on the grounds that it is powered by nuclear energy. Judge Wanderley granted this preliminary injunction after Francisco Alves dos Santos, the Recife Second Federal Jurisdiction Court judge, turned down the request by the Nature Defense Association of Pernambuco that the submarine leave Brazilian territorial waters.

On the morning of 2 November, Lawyer Luis Dario da Silva filed a petition for reconsideration which was adjudicated in the predawn hours of yesterday morning by the on-duty judge at the First Federal Jurisdiction Court. He ordered that the U.S. nuclear-powered submarine USS Greeling must leave Brazilian waters.

The submarine is anchored five miles off the port of Recife and, according the Ports Captaincy, it is in violation of international safety norms which ban nuclear-powered ships from docking at commercial ports [sentence as published]. This was not, however, sufficient for the ecologists, who went to court against the presence of the submarine in Recife and gained the preliminary injunction ordering it to move out.

The submarine remained at anchor while the task force commanders received the preliminary injunction on the fleet flag ship during the predawn hours yesterday. They are studying the possibility of filing an appeal against Judge Wanderley's decision, thereby allowing the U.S. submarine to remain in Brazilian waters.

Malaysian Commentary Scores EC Plan To Ban Tropical Hardwood Imports

BK0611125490 Kuala Lumpur International Service in English 0800 GMT 6 Nov 90

[Station commentary]

[Text] Malaysia and other developing countries in the region continue to be at the mercy of the bigger and more

advanced countries, especially of the West. The developed and industrialized countries do not hesitate to use their economic clout to impose their will on the less developed ones.

Last month the European Parliament adopted a resolution to ban the import of tropical hardwood from Sarawak and east Malaysian states. The resolution came about as the result of a report by the International Tropical Timber Organization—ITTO—to the European Community [EC], stating that logging activities in the states would lead to catastrophic deforestation.

This assumption is without any basis whatsoever. Malaysia has always adopted and continues to adopt well-defined and meaningful policies in terms of environmental protection. When compared to timber producers in other parts of the world, the damage caused to Malaysia's forests is minimal.

The EC's recent resolution can only be taken as creating another nontariff barrier to other developing countries' exports. As Malaysia's Foreign Minister Datuk Abu Hassan Omar said, developing countries are being made to shoulder the burden of halting the deterioration of the global environment when the developed ones are themselves guilty of having caused more than their share of the damage through pollution and other means.

It is distressing to note that the industrialized nations seem ready to resort to economic arm-twisting to force their will upon the developing ones. Malaysia is becoming accustomed to such tactics. The move by the U.S. Congress, for example, to remove the US\$1.5-million military training grant to Malaysia on the alleged human rights violation against the Vietnamese boat people is a case in point.

As for the ban on tropical timber products from Sarawak, fortunately there are some within the EC who will continue to play a moderating role in the community to restrict economic protectionism and promote expanded trade. Denmark is one such country that has always been committed to the principles of the open trading system. The Danish Foreign Minister, Mr. Uffe Elemann-Jensen, who is currently here on a five-day visit with a six-member delegation, is to sign an investment guarantee agreement with Malaysia. Denmark has more investments in Malaysia than in any other ASEAN country. And there are good prospects for greater economic cooperation between the two countries.

Malaysia is now laying emphasis on the development of small- and medium-scale industries. These will benefit from the Danish investments and from that country's well-known technology and expertise in several fields.

The visiting Foreign Minister of Denmark has commented that Malaysia has been made a victim of the deforestation policies of other countries where more serious harm has been done to the environment. There

must be others in the EC who share Mr. Elemann's views and the 12-member community should think twice before taking action on the resolution.

ASEAN has warned that if the ban on the import of tropical hardwood from Sarawak is implemented, ASEAN will retaliate by boycotting EC products. ASEAN will be firm in safeguarding the legitimate interests of its member countries. Its solidarity in facing challenges posed is without question.

Danish Support Sought in Defending Malaysian Timber Policies

*BK0711105590 Kuala Lumpur International Service
in English 0800 GMT 7 Nov 90*

[Station commentary]

[Text] It is indeed encouraging to note that at least one European country has come out in support of Malaysia's forest conservation policy. The Danish Government has acknowledged that Malaysia has been made a victim of other countries' indiscriminate logging activities.

The problem is environmental groups often group Malaysia with other tropical forest producers. This includes those countries from South America where the damage to forests had affected the global environment. As a result, despite the many protests by Malaysia, it is continuously being accused of wasteful logging. But what the so-called champions of the environment failed to recognize is that Malaysia has one of the best management and conservation policies. This has been admitted by many forestry experts.

The visiting Danish Foreign Minister has urged Malaysia to explain its policies and expose the real situation. This (?reveals) that environmentalists are expected to continue their pressure on tropical timber products. But the question is how much can Malaysia do if the environment groups are biased and do not listen to its explanations. Then it looks as if they are looking towards a confrontation.

Two weeks ago the European parliament passed a resolution to ban the import of tropical timber products from Sarawak. ASEAN, in retaliation, has warned the European Community [EC] it would boycott ASEAN goods if the ban was imposed [sentence as received].

Malaysia, on its part, has over the last two years been trying hard to counter all these accusations by sending several missions to Europe. But all these have met without success. However, Malaysia is not going to give up that easily. Logging is an important means of income for the people. Being a developing country, it needs all the sources of revenue it can get. To this end, Malaysia will seek the assistance of Denmark in convincing other EC members of the measures it has taken.

It is worthy to know that it is implementing proper forestation and management policies. EC members should also realize that any ban on tropical product

import would only create unemployment. This would further jeopardize the economies of timber producing countries such as Malaysia.

The road to defend itself would not be easy. This is in view that many of the environmental groups have vested interests. It is very likely that they are being fed incorrect information. In fact, Malaysia has opened all its doors and arranged for relevant groups to see for themselves what is happening in Sarawak. No stone has been left unturned so that whosoever is keen to obtain the facts will have access to all information.

Sometimes it is difficult to deny that these delegations were heard mainly to protect the interest of Western softwood producers. Most of the environment problems are caused by the industrialized Western countries. This is ignored by environmentalists who still point the accusing finger at Third World timber producers. It should be realized that deforestation is not the problem of producers alone. It is a universal matter.

Tropical forests are the world's heritage. In view of this, developed countries should work with and assist producers to preserve the forests.

German-Indian Arabian Sea Atmospheric Project Findings Announced

*91MI0002A Bonn TECHNOLOGIE-NACHRICHTEN
MANAGEMENT-INFORMATIONEN in German
31 Aug 90 pp 7-8*

[Text] It is widely recognized nowadays that atmospheric carbon dioxide affects the temperature of the earth's surface. There is also the well-founded fear that the release of large quantities of this gas during the combustion of fossil fuels may cause a greenhouse effect and, consequently, global warming.

What is far less well-known is the existence of processes that can lead to the permanent removal of carbon dioxide from the atmosphere. The oceans play a fundamental role in this respect. Carbon dioxide gas present in the atmosphere can dissolve in the surface water, where the marine plankton—microscopic algae and animals—assimilates and fixes part of it in organic matter (biomass) or skeletal material (e.g., calcareous shells). These

organisms are short-lived and, when dead, mostly sink to the bottom. The oceans, which are several thousand meters deep, thus become carbon dioxide dumps.

According to the results of a joint German-Indian project funded by the BMFT [FRG Ministry of Research and Technology] (subsidy: 270,000 Deutsche marks, duration: 1 July 1989 to 31 December 1990) in the Arabian Sea, wind conditions can considerably affect the sinking rate of carbon dioxide: The stormier the sea, the greater the quantity of carbon dioxide that is fixed and pumped to the bottom.

High wind speeds of the type that occur in the Arabian Sea during the monsoon season, from June to September and from December to February, give rise to vigorous mixing of the topmost 60-80 meters, thus bringing nutrient-rich layers to the surface, even in offshore areas. The result is an explosive proliferation of algae and a plankton bloom, which boost carbon dioxide fixation. This in turn leads to an enormous increase in the quantity of sinking biological material. In other words, the biological carbon dioxide pump is activated.

The significance of the results achieved in the course of this joint German-Indian project extends far beyond the confines of the Arabian Sea.

Large oceanic regions have to date been "water deserts," because they lack the nutrients to support all but minor algae growth, with the result that the fauna too is scarce.

It must be now assumed that in off-shore oceanic regions as well, strong winds will bring deeper, nutrient-rich layers to the surface and that this in turn will trigger temporary plankton growth and thus lead to an increase in the amount of fixed carbon dioxide dispatched to the ocean floor.

An essential prerequisite for future climatic forecasts will be an intensive joint international study, in all the oceans, of the role played by this newly-discovered wind-activated biological carbon dioxide pump.

Additional information may be obtained from Dr. V. Ittekkot, University

of Hamburg Institute of Biogeochemistry and Marine Chemistry, Bundesstr. 55, 2000 Hamburg 13.

ETHIOPIA

Afforestation Efforts Reported Showing Effect

91WN0054A Addis Ababa THE ETHIOPIAN HERALD
in English 5 Oct 90 p 1

[Article: "Afforestation Drive in West Shoa"]

[Text] (ENA)—The Afforestation campaign launched in West Shoa Administrative region has begun to show encouraging results, according to a report in yesterday's issue of the weekly Party organ, SERTO ADER.

There are 55,000 hectares of state forests at the Chilmo-Gajji area of Dendi province and at the Muti-Jengfo area of Jibat province.

The unsystematic exploitation of forests in the two areas to meet the demand for lumber used by several wood-works led to their gradual depletion, the report in the organ of the CC of the WPE said.

A system of scientific utilization has now been introduced by the Department for Agriculture which has already completed surveying and registration work in one of the state forests and is about to proceed to the next.

Although natural forests still serve as a supply of much-needed raw materials for wood industries, afforestation campaign is well under way in the two areas that led to the creation, over the past few years, of 1,500 hectares of newly reforested land, according to the paper.

In 1989/90 alone 106 hectares have been reforested, while control posts have been set up to discourage deforestation and the illegal felling of trees.

A sensitization effort has also been launched to promote forest conservation, and education is given to peasants with visual aid to make them aware of the danger of paying minimal attention to the environment.

The new economic policy, the paper noted, has opened up opportunities for individuals to plant trees and use them for their own benefit, which in turn led to a higher degree of afforestation and the planting of tree-seedlings.

The European Economic Community (EEC) and the World Food Programme (WFP) have extended financial assistance to help the implementation of forest conservation and development projects in the area where running water has heightened the effects of soil erosion. The paper said that there are at present encouraging signs of bringing about ecological balance within the administrative region.

SOUTH AFRICA

Transvaal Authorities Blame Boycott Organizers for 'Health Hazard'

MB0811175290 Johannesburg Domestic Service
in English 1500 GMT 8 Nov 90

[Text] The Transvaal Provincial Administration [TPA] says it holds the organizers of the boycott of rentals and service fees in black residential areas responsible for the serious health hazard caused by the dumping of raw sewage in the river systems of the Highveld.

The director of liaison services for the TPA, Mr. Piet Wilken, says there were strong indications that residents wanted to pay their service fees, but that they were being intimidated not to do so. Mr. Wilken made an urgent appeal to black local authorities and consumers to pay their rentals and service fees. He said that the 26 million rands paid to these authorities by the TPA every month as bridging finance because they did not have the necessary infrastructure, had been used in the interim to keep the services operating.

The Highveld river systems, and the tributaries of the Vaal River in particular, are faced with a serious health hazard because of the raw sewage which is being dumped into the rivers from scores of black residential areas. A spokesman for the Highveld region of the Department of Water Affairs, Mrs. Maria Oliveira, said officials had been instructed to take action, and local action against local authorities responsible for polluting the streams.

Mrs. Oliveira said the problem had resulted from the discontinuation of services to black towns where sewage was not being pumped, treated or removed. She said sewage pits were overflowing into the streets and sewage buckets were being emptied directly into streams. Streams that have been affected are the Bleskopspruit at Daveyton, the Wonderfonteinspruit, the Natalspruit, and the Klip River at Soweto.

Official Says Johannesburg Drinking Water 'Safe' Despite Pollution

MB0911155690 Johannesburg SAPA in English
1409 GMT 9 Nov 90

[Text] Johannesburg Nov 9 SAPA—There should be no reason for public concern about the quality of Johannesburg's reticulated water supplied by the Rand Water Board.

This was said on Friday by Dr. Chris Viljoen of the board, reacting to authorities' earlier health hazard warnings about serious sewage pollution in the upper reaches of tributaries to the Vaal River such as the Klip River, the Bleskopspruit and Natalspruit near Soweto at the East Rand, and the Rietspruit in the Westonaria region.

Dr. Viljoen said they drew 25 percent of all water from the Vaal River Barrage region; some from ground water and the majority from the Vaal dam.

Daily tests conducted by the CSIR [Council for Scientific and Industrial Research] had not turned up any dangerous pollution, he said.

Dr. Viljoen said if there was any indication that the Vaal River Barrage region might become polluted to unacceptable levels, the Rand Water Board would issue an immediate public warning that hazardous water conditions existed—and start drawing all its water from the Vaal dam.

He did however point out that a health hazard always existed for water sports enthusiasts who used streams such as the Vaal River Barrage region—and that such people in any case should not inadvertently swallow any untreated river water.

The latter warning—never to drink any untreated water from any streams—was also issued by a spokesman from the Johannesburg Health Department on Friday.

Soweto Civic Association Vows Cleanup of Sewage

*MB0911202890 Johannesburg SAPA in English
1950 GMT 9 Nov 90*

[Text] Johannesburg Nov 9 SAPA—The Soweto Civic Association—fearing a possible outbreak of dangerous diseases from human sewage pollution in the townships—plans to launch an urgent cleanup operation.

Association President Mr. Isaac Mogase told SAPA on Friday that the black communities did not want to be blamed for creating a health hazard and that they were therefore considering a cleanup campaign.

Top health authorities warned on Friday that the overflow of human sewage was causing serious pollution in

the streams leading into the Vaal River such as the Klip River near Soweto—and posing a serious health threat to people using such water.

Earlier, a spokesman of the Transvaal Provincial Administration [TPA] had blamed this growing health hazard, which is slowly leeching from the townships into adjacent streams, on the rates and rent boycott being conducted by the civic associations.

The TPA's Mr. Piet Wilken said on Thursday that those who had started rent and service boycotts were responsible for the suffering of townships residents.

Mr. Mogase said the Soweto Civic Association did not want to take over the function of the authorities, but his organisation was considering the campaign to avoid serious outbreaks of diseases among township residents.

"Even where people are paying rates, the townships' sewage systems are dirty, overflowing and plagued with blockages. Refuse is not being removed at an acceptable standard. We feel that the TPA must look for another scape goat," Mr. Mogase said.

Mr. Moses Mayekiso of the Civic Association of Southern Transvaal told SAPA on Friday that it was up to the government to rectify the problem.

"We have repeatedly called on the government to dismantle the local authorities, but they do not heed our calls.

"Things are this chaotic because of local authority structures," he said.

He said the civic associations are planning protest marches all over the southern Transvaal on November 14 to demonstrate against the government's continuous refusal to heed their demand to dismantle the local authority structures.

Quebec Commission Concludes Toxic Polluters Responsible for Cleanup

91WN0051A Toronto THE GLOBE AND MAIL
in English 11 Oct 90 p A6

[Article by Andre Picard]

[Text] Montreal—The task and cost of disposing of the 1.3 million tonnes of hazardous waste produced in Quebec each year should rest squarely on private enterprise, a provincially appointed commission says after a year of study.

To give business some prodding, an independent hazardous-waste control board should be created to oversee the cleanup of the province and a new tax should be imposed on all hazardous waste generators, the commission says in a sweeping 491-page report.

"The commission is not proposing a public-sector waste-management system, because we believe private corporations have a role to play at every stage in the waste-handling system," Yvon Charbonneau, chairman of the Commission of Inquiry into Toxic Waste, said at a press conference yesterday.

"Indeed, the commission is calling upon private enterprise to provide equitably accessible, high-quality service at a reasonable cost to all regions and all generators of hazardous waste."

Mr. Charbonneau said only \$35-million in public money would be required to implement the 153 recommendations his working group has put forward.

Business would be called upon to spend \$220-million annually to meet stricter standards and another \$110-million a year to clean up sites contaminated in the past. It would also be subject to much more punishing fines for breaking the law.

Daniel Green, president of the environmental group Societe pour vaincre la pollution, praised the report and called on the government to seize the initiative.

"Polluters have to pay for the hazardous waste they produce, and they have to pay to clean up the mess they created in the past," he said. "Hazardous waste is polluting Quebec now, and the government and industry have to act now."

The commission gave its blessing to many recommendations of the province's leading industries, notably a ringing endorsement of incineration. In particular, Mr. Charbonneau said, several waste-management facilities will have to be built or expanded in Quebec within the next five years, including:

- A collection and transportation system for all regions of the province, including transfer centres, and specialized facilities for some forms of hazardous waste;
- A plant for refining used oil, with a capacity of at least 80,000 tonnes a year;

- New thermal-generation facilities that would allow industry to burn up to 106,000 tonnes of hazardous waste to create power, up from the current level of 18,000 tonnes;
- An increase in the processing capacity of Stalex Canada Inc. to 200,000 tonnes in 1993, from the current 96,000 tonnes; and a new processing centre for inorganic waste capable of handling 75,000 tonnes;
- A doubling of the capacity of the Laidlaw incinerator for organic waste to 90,000 tonnes annually by 1994; and a new incinerator with a capacity of 80,000 tonnes;
- New mobile incinerators with a capacity of 20,000 tonnes annually, primarily for the disposal of polychlorinated biphenyls, or PCBs.

Above all, Mr. Charbonneau said, the commission wants industry to curb its production of hazardous waste and increase its recycling efforts. But, after that, incineration is a necessary evil.

Reminded of the stiff opposition to incineration during the commission's public hearings, he said: "At some point, we are left with the choice between eating the pile and burning it."

Quebec Environment Minister Pierre Paradis said yesterday that within a month he will ask the cabinet to approve public hearings on the use of a mobile incinerator to rid the province of PCB-contaminated waste stored in 361 locations.

"I have the Charbonneau report and I have no excuse not to move on it now," Mr. Paradis said.

However, he said not all of the recommendations of the \$1.6-million inquiry will be followed, referring specifically to the proposal for a hazardous-waste control board.

One of the principal problems encountered by the commission, and the main inspiration for the control board, was the so-called "hazardous-waste management deficit."

The five-person working group began its public work last spring with the announcement that at least 368,000 tonnes of hazardous waste could not be accounted for each year and was probably being dumped or exported illegally. By implementing his recommendations, Mr. Charbonneau said yesterday, that figure could be slashed to less than 40,000 tonnes by 1996.

He said the new board should oversee the management and disposal of millions of tonnes of waste that, for all practical purposes, is hazardous but is not considered as such under the law.

"Quebec can master the problem of hazardous waste in the short term and with a financial investment within our means," Mr. Charbonneau said.

Officials Say Toxic Discharge Into St. Lawrence Cut

91WN0052A Toronto THE GLOBE AND MAIL
in English 10 Oct 90 p A7

[Article by Andre Picard]

[Text] Montreal—Government officials say the amount of liquid toxic waste discharged into the St. Lawrence River by large industries has been cut by 30 percent in the past two years, and they have promised to dramatically increase cleanup efforts in coming years.

"We can't just clean up the St. Lawrence River. We have to clean up the entire ecosystem," federal Environment Minister Robert de Cotret told a press conference yesterday. He said the government hopes not only to meet its original objectives but go beyond them by cleaning up estuaries and reducing the effluent of all industries on the river.

But environmental groups say the reductions are meaningless and reacted to the new promises by the federal and Quebec governments with skepticism.

"Thirty percent of what, by whom and from what sources. Those are a few questions that spring to mind," said Christian Simard, spokesman for the Union Quebecoise pour la conservation de la nature, the province's largest environmental group.

"In the end, we need to know if there are fewer toxins in the river, if there is less pollution, and that isn't clear."

The governments and environmental groups estimate that industries dump 100,000 tonnes of toxic waste—including oils, sludge, solvents, acids, polychlorinated biphenyls and cyanide—into the St. Lawrence each year.

The federal government said the 50 top polluters along the river account for 80 percent of the pollution, but

refused to reveal the exact quantity or makeup of the waste being discharged by each firm.

The St. Lawrence Action Plan—a joint federal-provincial initiative—calls for those 50 companies to cut liquid toxic waste discharges 90 percent by the year 1993.

"You can't do that in a year, and we're not going to stop there," Mr. de Cotret said. "We also can't undo in three years what we've done in the previous 70 or 90 years."

Since the \$173-million plan was unveiled in 1988, only 10 companies have achieved their reduction goals, and another 11 have agreed to a cleanup timetable, he said.

Pierre Paradis, Quebec's Environment Minister, said the St. Lawrence is crucial to the environment and economy of the province, and no effort will be spared to save it.

"We can't hesitate to aim for a 100 percent reduction in pollution," he said. "Industry is co-operating, but if it doesn't co-operate we will get tough."

Besides the action plan aimed at the biggest polluters, Quebec has introduced legislation to monitor the liquid and solid discharges and airborne emissions of 600 companies along the river and its tributaries. According to the provincial Environment Ministry, however, at least 2,300 companies discharge dangerous levels of waste into the river daily.

"We're talking about an immense problem," Mr. Paradis said. "We have to start somewhere."

Daniel Green, president of the Societe pour vaincre la pollution, an environmental group, said the promises by the two governments have been made before. "The government seems to be recycling the only good environmental news it has, so I can't help but be skeptical," he said.

The action plan also calls for the expansion of wildlife areas.

Shanghai Reduces Atmospheric Pollution

OW2710070390 Beijing XINHUA in English
0258 GMT 27 Oct 90

[Text] Shanghai, Oct 27 (XINHUA)—The atmospheric environment in Shanghai has been markedly improved after 20 years of effort in air pollution control.

The waste gas and water from factories, exhaust fumes from vehicles and smoke from the coal stoves used by half of the city's residents used to badly pollute the city.

But early in the 1970s the municipal government and Environmental Protection and Economic Departments formulated plans to control the environmental pollution step by step.

Since 1978 a total of 17 iron and steel plants have got rid of the so-called "yellow dragons"—the yellow dust and smoke containing large quantities of ferric oxide emitted from their chimneys. In 1986 the city renovated over 20,000 stoves or kilns. In 1989 the disposal rate of waste gas in the city reached 65 percent and the dust reclamation rate, 92 percent. At the same time, the amount of coal used in the city had risen by 84 percent compared to 1981 but the amount of coal dust in the air had been reduced by 23 percent.

The state and municipal governments have formulated various regulations to control atmospheric pollution. Recently the municipal government drew up a plan to provide 1.1 million residents with gas stoves for cooking within three to five years to reduce the emission of poisonous gas. Meanwhile, factories causing serious pollution will be closed or merged.

Shanghai's Achievements in Environmental Protection Noted

OW2910195390 Beijing XINHUA in English
1855 GMT 29 Oct 90

[Text] Shanghai, October 29 (XINHUA)—Shanghai Municipality made great achievements in environmental protection in 1989, even though its economy developed quickly in the year.

This is the conclusion drawn in a municipal bulletin on environmental protection that was released here today.

According to the bulletin, the municipality's total discharge of industrial waste water in the year was 5.54 percent less than in the previous year, and the discharge of all the major pollutants in the waste water, except arsenic, dropped by varying degrees.

Meanwhile, the city made use of 89 percent of its solid industrial wastes, 3.7 percent more than in the previous year. Efforts were also made to control waste gases and smoke, dust and noise. Over 70 percent of the urban area of the city is now zoned to control noise levels.

The city invested 212 million yuan (45 million U.S. dollars) in 2,230 projects to control pollution—1,733 projects were completed. As a result, the city's capacity for disposal of waste water was increased by 26.12 million tons, and its capacity for disposing of waste gas was increased by 15.49 billion cubic meters.

In addition, 12 factories and workshops that had been seriously polluting the environment were moved outside of the urban area and measures were taken to control their discharge of pollutants.

INTER-ASIAN

Japan To Provide Funding for Thai Environmental Study

*BK0411035890 Bangkok BANGKOK POST in English
4 Nov 90 p 2*

[Text] Japan is to provide nearly 90 million yen for a sweeping study aimed at conserving wildlife and reversing the massive destruction of Thailand's forests. The funding of the one-year study on forestry conservation and associated problems was announced yesterday by Forestry Department chief Phairot Suwannakon.

The cost of 89 million yen is being funded by the Japanese Government though the World Bank.

The Forestry Department's study will be carried out by Pacific Management Resources (Thailand) Co. and is expected to be completed by May.

Thailand's forest area has shrunk to about 20 percent of what it was in 1988. Agencies, conservationists and some governments—including the Japanese—are concerned about forest destruction in Thailand.

The study would be on forest conservation, zoning and protection, utilities in national forest reserves and change of land holdings in the reserves. Results will enable authorities to know the causes of, and solutions to the problem of encroachment and settlement on national forest reserves.

Mr. Phairot said the study will be jointly conducted by officials of the Agriculture and Interior ministries, Land Development and Public Welfare departments and several universities.

Farmers living in encroached forests in at least three threatened forest areas will be interviewed. The interview is expected to reveal actual causes of the encroachment and involvement by influential figures.

Mr. Phairot said the study will be supervised by a policy committee headed by himself and senior officials in the Forestry, Land Development and Public Welfare departments, Office of Agricultural Economics, Office of the National Environment Board, national Economic and Social Development Board and representatives of private organisations.

About 100 wildlife sanctuary chiefs will be called for administrative training on wildlife conservation from November 5-16 at the Forestry Department, he said.

The 10 days of training will focus on the management of wildlife resources, wildlife sanctuaries, environment, community forestry, general laws, public relations and use of audio-visual equipment. It is necessary to upgrade the efficiency of wildlife sanctuary chiefs in the wake of current public awareness and growing cooperation by many sectors to preserve wildlife in the country, he said.

Training will provide modern concepts of wildlife management and protection which the wildlife sanctuary chiefs can apply in their work, he said.

JAPAN

Government Plans To Eliminate Mercury in Dry Cell Batteries

*OW0511142990 Tokyo KYODO in English 1208 GMT
5 Nov 90*

[Text] Tokyo, Nov. 5 KYODO—The Ministry of International Trade and Industry (MITI) is planning to eliminate mercury, an environmental hazard, from dry cell batteries, a MITI source said Monday.

The ministry is aiming to abolish the use of mercury in manganese batteries sometime in fiscal 1991, beginning April 1, 1991, and in alkaline batteries soon after fiscal 1992, he said.

Some 2.1 billion batteries of 4 billion ones, being produced annually in Japan, are destined for the home market. About 72 percent of the domestic shipments are of the manganese variety, while alkaline batteries make up 16 percent.

Under guidelines to be compiled by a MITI advisory panel later this month, Japanese manufacturers will be forbidden in fiscal 1991 to use mercury in manganese dry cell batteries. The mercury content of manganese dry cell batteries is currently 0.002 percent.

Manufacturers will be forced to reduce the amount of mercury in their alkaline dry cell batteries to 0.025 percent in fiscal 1991 from the current 0.1 percent.

The new guidelines will be stricter than those of the European Community (EC), currently the world's most stringent. The mercury content of batteries produced in the EC is not allowed to surpass 0.1 percent, and this will be lowered to 0.025 percent in 1992.

Mercury is used to prevent corrosion.

Domestic and overseas manufacturers have been working to develop anticorrosive alternatives.

The move by MITI was prompted by the launch last year by a few firms of production of dry cell batteries that do not contain mercury.

SOUTH KOREA

Anmyon Residents Protest Nuclear Waste Dump Plan

*SK0811022790 Seoul THE KOREA HERALD
in English 8 Nov 90 p 2*

[Text] Tae'an, Chungchongnam-do—More than 5,000 local residents staged a rally and street demonstrations in

protest against a government plan to construct a "nuclear waste disposal site" here.

The protesting residents gathered at the intercity bus station in Anmyon-up around 11 a.m. Tuesday and marched more than 10km, demanding the government "scrap its plan to establish a nuclear waste dump site."

Their protest was touched off by reports that the government is planning to build a nuclear waste dump here. A government official, however, denied the reports, only saying it is planning to build a nuclear energy-related research institute.

Most of the shopping district here was closed during the day and more than 2,000 students or about 40 percent of students attending 16 elementary and secondary schools in the town failed to attend the class in support of strong opposition to the waste dump.

Anmyon Islanders Abduct Officials To Protest Nuclear Dump

SK0811094790 Seoul YONHAP in English 0851 GMT 8 Nov 90

[Text] Anmyon Island, South Korea, Nov. 8 (YONHAP)—About 300 angry islanders locked five Taean County officials in the Anmyon town office at noon Thursday to protest against Government plans to put a nuclear waste dump on Anmyon Island.

The protesters, including students, captured Yi Yong-se, 47, public affairs section chief, and four other county officials who had come to observe the situation, beat them with sticks and took them away to the town hall.

The protesters seized a conference room in Anmyon town hall on Wednesday and are using it as situation room for their "struggle committee" against construction of a nuclear waste disposal site on the island.

They also assaulted a reporter from Taejon who came to cover the protest.

Moderates said they would negotiate with the radicals to free the officials.

About 3,000 islanders staged a violent protest on Mt. Chogyae, the site of the controversial west coast research complex that is to incorporate the nuclear waste disposal facility.

After holding a funeral for Anmyon Island, protesters torched a makeshift building and a crane.

The dump plan touched off a harsh protest from the residents of this west coast island, designated a national park.

Most shops are closed and many children have removed from school as part of the protest.

Officials Plan To 'Deal Sternly' With Nuclear Protesters

SK0911034090 Seoul YONHAP in English 0240 GMT 9 Nov 90

[Text] Seoul, Nov. 9 (OANA-YONHAP)—Prime Minister Kang Yong-hun ordered Home Minister An Ung-mo Friday to deal sternly with violent acts in connection with massive popular protests on an island to prevent the construction of a nuclear waste dump.

"Every citizen can air his opinion about the government's measure or policy, but the method should be in accordance with democratic procedures and in peace. Whatever the cause, people should not try to resort to violence to settle their grievances," Kang said.

There can be no tolerance of acts to destroy, torch and firebomb public facilities, he said, telling the home minister to bring the popular unrest under control.

A cease-fire between thousands of protesters and riot police appeared to be holding Friday morning on Anmyon Island after the government said it was halting construction of a nuclear waste dump on the west coast island.

The angry islanders, following a sometimes violent protest, dispersed at close to midnight Thursday when the government announced on television that the nuclear dump would be cancelled if people were against it.

Tension remains high, however, as more than 2,500 riot police are on guard in Anmyon town to keep outsiders off the island and some 80 percent of students attending the elementary, junior and high schools are boycotting classes. Police rounded up some 60 people in the riot and said they will arrest those who instigated violence.

Youngsters, in groups of 20 to 30, continue to lead sporadic clashes to protest the roundup and police checks on residents.

Chong Kun-mo, science and technology minister, issued a public statement late Thursday denying that there was ever a plan to build a permanent nuclear waste dump on the island.

Negotiations were under way for construction of a nuclear research center inside a new science town on the island, some 250 kilometers southwest of Seoul, but the plans will be scrapped if the residents oppose them, Chong said.

Government planners apparently decided, however, to try to convince the islanders of the safety of the waste dump.

Information Minister Choe Pyong-yol, emerging from a meeting late Thursday called by the prime minister, said the planned facility on the island (population: 13,300) was temporary and posed no threat to residents.

"People are fearful of nuclear power and appear to misunderstand nuclear waste," he said. "But the facility is only temporary and the government will seek a more appropriate site for a permanent facility after scientific research and inspection."

The island, connected to the mainland by a bridge, had been engulfed by protests since Monday as residents young and old opposed the dumping of nuclear waste on their island.

More than 10,000 people clashed with police Thursday, setting administrative offices and armory on fire. Documents and firearms had been removed and there were no serious losses. On Thursday, 20 people were injured in the melee and there was property damage of an estimated 60 million won, according to the police.

Dozens of residents and police were injured in the clashes, which subsided only after the 10 P.M. Announcement by Chong on national television. More than 1,000 students, chanting and shouting, continued to march down the streets until midnight, but no serious incidents were reported during the night.

Order Restored in Anmyon After Antinuclear Protest

*SK1011035990 Seoul THE KOREA TIMES in English
10 Nov 90 p 3*

[Text] Taeon, Chungchong-namdo—Calm was restored on this west coast island yesterday, but there remains lingering tension over an alleged government plan to construct a nuclear waste dump.

Police regained control over the streets of Anmyon-up, which turned into a lawless state Thursday with thousands of residents setting a police substation ablaze and beating police officers.

About 2,500 police were poised at major places of the town from early yesterday morning in preparation for further attacks by residents calling for the release of those apprehended.

Residents launched a sit-in protest and students boycotted classes, demanding that about 60 arrested residents be immediately set free and the government plan to build a nuclear waste dump be scrapped.

Prosecutor General Kim Ki-chun ordered law enforcement officials yesterday to round up those engaged in the arson of the Anmyon Police Substation and other illegal acts.

He also told them to determine whether the Thursday violence was instigated by dissidents or student activists.

Meanwhile, Home Minister An Ung-mo, Science-Technology Minister Chong Kun-mo and Chungchong-namdo Gov. Shin Tae-pong issued a statement, saying

that neither a radioactive waste storage site nor a research institute would be set up against the residents' will.

The statement said that the government had no plan to build a nuclear waste dump on the island.

Police charged into the downtown streets at 4 a.m. and drove residents out of public buildings. But there were no major clashes as most residents returned home.

Police confiscated four boxes of firebombs, placards and leaflets and removed posters in the streets.

While blocking outsiders from entering the town, police searched hotels, inns and private houses on the pretext of rounding up criminals, inviting residents' strong protest.

Police are currently using the Anmyon-up Office as a situation room because the police substation was completely gutted.

Other administrative works remain paralyzed as agricultural cooperatives and post offices were still closed.

Residents gathered at the Anjung Primary School to discuss future measures and Chungchong-namdo governor met representatives of the residents to persuade them to refrain from violent acts.

Over 80 percent of students of primary, middle and high schools failed to attend class yesterday but the class boycott is expected to end soon.

The violent clashes between residents and riot police left four government officials, six police officers and about 10 residents injured, some seriously.

Police also estimated property damages at 67 million won as an excavator, a sedan and a motorbike as well as the police substation were completely gutted.

Nuclear Waste Policy Examined in Light of Protest

*SK1011051890 Seoul THE KOREA TIMES in English
10 Nov 90 p 3*

[Article by staff reporter Han Tong-su: "Nuclear Waste Nowhere To Go"]

[Text] With the virtual collapse of the plan to build a radioactive waste disposal facility on Anmyon Island, the government will have to look for another site for the waste treatment and storage.

But it will not be an easy task and it is highly probable that residents near any candidate site will put up a fight to block the government move, as was the case on Anmyon Island.

In light of the vacillating government attitude and resident's stubborn opposition plus the people's fine-tuned sensitivity on nuclear energy, the nuclear waste storage project in Korea faces a dead end, some nuclear experts hastily predict.

Strong resistance has already scuttled plans to build a radioactive waste storage facilities in Ulchin, Yongdok on the East Coast and several sites on the South Coast, and now the bid to set aside 3.3 million to 6.6 million squaremeters of Anmyon Island has met the same fate.

Some critics said the government's failure to persuade residents of the "safety" of the waste treatment and storage facility brought about the rioting by the islanders who were reluctant to believe the government was canceling the project even after the Science- Technology Minister Chong Kun-mo's announcement Thursday.

The "allergic" negative reaction of people against anything which is "nuclear" was apparently bred from the Three Mile Island incident and the disaster of Chernobyl, as well as from sporadic media reports questioning the reliability of the Korean nuclear industry.

At present, the total radioactive waste of the nation's nine nuclear reactors sits in 28,000 drums temporarily warehoused at each plant, but by 1994 the makeshift storage facilities are expected to hit saturation point.

Already, the warehouse at the Kori No. 1 plant, the nation's first reactor built in 1978, is full and the waste from the plant has been transported to and housed in the storage facility at the No. 3 plant nearby, which will meet the same fate in a few years.

The spent nuclear fuel, including elements like plutonium, from nine reactors at the Kori, Wolsong, Ulchin and Yonggwang nuclear power plants totaled 390 tons, including 123 tons from the Kori No. 1 plant, as of the end of 1989.

Medium-and low-level radioactive waste produced from 624 industrial firms, hospitals, research institutes and other radioisotope-using labs has been soaring year by year, as much as four times each year in the 1980s.

The Korea Atomic Energy Research Institute (KAERI), the only licensed radioactive waste collector and processor in the nation, is incapable of treating the huge volume of waste. The government-invested institute is now temporarily storing 25,000 drums of low-level radioactive material at its facility.

The KAERI was supposed to conduct research and development of radioactive waste treatment technology in the planned research center in Anmyon Island. But the plan has been virtually called off.

Nuclear experts said the problem lies in poor nuclear power generation planning by the government which should have taken into consideration the nuclear waste treatment issue at the time of plant construction.

"The government should have drawn up a long-term waste treatment and storage plan in the 70s when they launched the nuclear power plant project," they said. "At least, it should have secured storage sites in some remote areas in anticipation of the problem."

"It was like building a house without toilets," said the experts. "Now that people's abhorrence of the nuclear waste and environmental movement is gaining momentum, it is virtually impossible to secure dumping sites on the Korean peninsula."

"There is no easy way out. Korea cannot dump the nuclear waste in the ocean as Japan and several European countries did until the early 1970s," they said.

Japan, now building a waste disposal site, suffered a similar problem like Korea, including fierce opposition by residents.

To alleviate their fear and to prove that the waste disposal was not so "dangerous," Japanese authorities sent residents to Sweden and other countries to have them inspect the storage facilities by themselves.

At present, Sweden stores the waste in caves in rock strata 60 meters underground, and West Germany in salt mines 1,000 meters underground. They are stored in the facilities after treatment which reduces their radioactivity level.

Korea has difficulty in finding the ideal storing site because of the smallness of its territory.

The experts recommended several options—though each has its drawbacks.

The first suggestion is to expand the storage facilities inside the nuclear power plants and ship them to reprocessing facilities in foreign countries after initial treatment. This is unrealistic because no foreign country is willing to accept the waste on their soil.

The second option is to use uninhabited islands as interim or permanent storage sites, as is the case of Taiwan. But Korea has few islands satisfying the conditions for storage.

The third option is for the government to find an appropriate site which is far away from residential areas. But they are also hard to find.

PHILIPPINES

President Aquino Signs Toxic Control Act Bill Into Law

HK0811121990 Manila DWIZ Radio News 882
in Tagalog 0400 GMT 8 Nov 90

[Text] President Aquino has signed into law a bill imposing heavy punishment on any group or individual bringing into the country toxic substances, including nuclear wastes. In a simple ceremony she signed Republic Act No. 6969, better known as the Toxic, Hazardous, and Nuclear Wastes Control Act. Mrs. Aquino also praised Congress for approving the bill in response to measures to safeguard our environment. Under this act, the Department of Environment and Natural Resources will be authorized to monitor all chemicals made in the Philippines and used by manufacturing firms. This is to ensure they are not detrimental to either the environment or the people's health.

INTRABLOC

**International Expert Arrives To Check
Ruse-Giurgiu Area***AU1211194590 Sofia BTA in English 1907 GMT
12 Nov 90*

[Text] Sofia, November 12 (BTA)—The Press Department with the Ministry of Foreign Affairs has informed the BTA that in accordance with the agreement the Governments of Bulgaria and Romania reached on carrying out an international expertise inspection in the region of Ruse and Giurgiu, Mr. Jan Huismans, director of the United Nations Environment Program International Register of Potentially Toxic Chemicals, arrived here today.

Mr. Huismans had a meeting at the Ministry of Foreign Affairs at which some problems related to the organization of the inspection were discussed.

The international team of experts who will carry out the inspection are expected to be here late in November.

BULGARIA

Radiation Leak in Kozloduy Breakdown Denied*AU0911211390 Sofia BTA in English 1902 GMT
9 Nov 90*

[Text] Sofia, November 9 (BTA)—“The report which appeared in Yugoslav and other mass media about an accident at generating unit five of the Kozloduy Nuclear Power Plant involving a leak of radiation is absolutely groundless,” said Mr. Georgi Khalachev, first deputy chairman of the Power Engineering Committee. “The Yugoslav press allegations that the power plant operates Chernobyl-type reactors and that reports that radioactive waste is stored on the Bulgaro-Yugoslav border do not correspond to the truth, either. Obviously, it is a question of untrue and tendentious information from an unreliable source,” he told the BTA.

Mr. Khalachev said that the automatic switch-off of Kozloduy unit five on October 30 was actuated by the electric safety system and was due to a breakdown in the electric generator. The unit was switched off normally, without any defects in the remaining facilities.

He explained that the unit's switch-off and repair work are unrelated to nuclear and radiological safety and do not involve higher levels of radiation.

Bulgarian Nuclear Power Plant Fault Still Not Corrected*AU1211202290 Sofia DUMA in Bulgarian 9 Nov 90 p 1*

[Text] Kozloduy, 8 November (DUMA correspondent Iliya Borisov)—The country has lost over 100 million kilowatt-hours of electric power during the week which has elapsed since the shutdown of the No. 5 generating

unit at the Kozloduy Nuclear Electric Power Plant. The fault has still not been corrected, despite the great efforts being made by specialists and workers.

The best nuclear power engineers and repair personnel are engaged in the everyday operation of the Kozloduy Nuclear Power Plant. During the last few days five of the eight turbine groups, each with a capacity of 220 megawatts, have been operating reliably. Every 24 hours they supply about 26 million kilowatt-hours of nuclear-produced electricity into the country's long-distance power lines.

Statistics on Pollutants, Health Problems in Ruse*91BA0033A Sofia DUMA in Bulgarian 27 Sep 90 p 4*

[Article by Krasimir Tsigularov and Galina Antonova: “Ruse's Evil Genius Is on the Other Side of the Danube”]

[Text] “As far back as 1986 I received an order from the Ministry of Public Health, from Radoy Popivanov, the minister at the time, not to hide any data or numbers regarding the city of Ruse's environmental pollution,” Dr. Evgeni Nazurov, chief physician of the United Regional Hospital in Ruse, insists. We then started to enumerate publications and journalists that have published data regarding the city's disaster. Almost all of them are foreign.

Information has been collected through many channels during all of these nine years after the beginning of the chlorine “invasion.” The number of gas clouds, the concentration of chlorine and mineral acids, the rate of morbidity increase, comparisons with control “clean” days. All this represents enormous and horrifying statistics hidden in numerous folders in different departments and with different people. This information has reached the Council of Ministers through the corresponding channel. And who knows how many other offices, as well? And then it stayed there usually mute and powerless.

Perhaps the opposite conclusions, such as commissions created to analyze conditions and study long-term effects on people's health, some high-level attempts or some efforts to save something of the dying city will surface from somewhere within the memory or from some steel safes. People on the “low level,” however, who have lived with anger and pain through the most tragic years of the history of the 1,900-year-old Ruse, refuse to believe in words and promises. After the optimism from the meeting between Andrey Lukanov and Petre Roman in July, the time has come for new anger. Pollution was not eliminated; only part of its composition was changed.

Students in Ruse started the school year wearing black bands, and masks on their faces. On 27 September, a large and well-organized, citywide rally, a result of the efforts of all political and civic forces, will probably bring together tens of thousands at the stadium.

On 17 September a woman from the city said: "I was listening to what they were saying in the square and was crying. Dear God, I was crying for every word, every year, and every day of this nightmare."

On 27 September, those who gather at the stadium will not cry. They will try to raise the European consciousness, to tell the world what happened to Ruse. This day, every reasonable person will understand that it is the state's duty to protect its citizens.

Silence has not been highly regarded in Ruse. And so, the city has not become a symbol of fading socialism but a hated, suspicious, turbulent, and dangerous city. Perhaps this also helped toward its tragedy. It is a sad agony, and dry statistical data are its only measure.

Sometime in 1977 a high school natural science expedition studied air pollution in the city. At the time, ecology had not yet become politics, but signs of damage on people and the environment were already evident. Data from those studies pointed out that Ruse was in first place of all Bulgarian cities, according to pollution level. The quantities of dust, lead aerosols, nitrogen oxides, sulfur oxides were often tens of times higher than the maximum permissible concentrations. Average values were such that no one wanted to believe they were a reality.

Reality turned out to be considerably more unpleasant. Correlation with the incidence of respiratory system diseases showed a direct relationship with the pollution level. For a number of years, the parameters of this catastrophe have been definitely clear to the people processing and receiving the information.

Only in September of this year, however, a study was started on the city's microclimate, its effect on the spread of pollutants, and the altitude and resistance of inversion currents. It is being conducted jointly by the Meteorological Institute at BAN [Bulgarian Academy of Sciences] and its Romanian colleagues.

Ruse is situated in an area resembling an amphitheater, which, in principle, makes it susceptible to pollution. The number of windless days there increased and, in 1988, reached 137. The nature of air currents is such that accumulation of pollutants is favored. But ecological logic was not sought in the chaotic growth of industrial sites and residential areas. It is as if an evil genius positioned the great pollutants in such a way that the city could be poisoned as much as possible. We can only hope that the results of this competent, at last, study will impose definite changes.

If we look again at pollution statistics, we will find a positive fact: The size of our own "contribution" is decreasing progressively. A series of programs for exporting and closing environmentally unsafe industries, and for the restructuring of city transportation, are giving practical results for the time being. Gas will be used for the generators at the Iztok TETs [Thermoelectric Power Plant]. Fuel oil has been used so far that is a source of sulfur emissions. It is not impossible to convert two of the generators to gas. Technically, it is possible, and \$1 million have been projected for this goal. The dollars must be bought at the market exchange rate. We do not have the several million leva needed for this exchange.

Registered Cases of Disease in Ruse

Year	Population	Number of Cases	Respiratory System Diseases	Per 1,000 Persons
1977	167,365	177,044	70,587	1,057.83
1978	169,896	177,151	69,134	1,042.70
1979	172,133	165,603	65,622	962.17
1980	182,593	207,374	76,512	1,135.71
1981	184,233	335,767	132,798	1,822.51
1982	189,700	331,275	134,326	1,746.30
1983	190,564	323,992	147,114	1,700.20
1984	192,769	297,942	127,811	1,545.59
1985	195,237	318,007	141,722	1,628.82
1986	196,154	318,041	148,366	1,621.38
1987	196,851	292,424	129,237	1,485.50
1988	190,746	273,724	124,186	1,435.02

According to data from Ruse Okrug Hospital

Engineer Ivan Cherkosov, deputy chairman of the Obshchina People's Council, is fairly explicit regarding the deadlines Ruse's polluting industries must meet to either implement their environmentally safe programs or be closed. The foundry in the Georgi Dimitrov plant, which

after so many years is now situated practically in the center of the city, has already ceased operation. The P. Karaminchev chemical plant has new purification equipment used in part of its production. The other part is not operational because there is a shortage of raw materials.

The production of inorganic acid has been discontinued at the G. Genev chemical plant. Trolleybus transportation is coming along as planned. The electric filters at the Iztok TETs are capable of catching 97 percent of all dust.

A solid-waste incineration plant, however, is only a wish; now it would cost about \$40 million. For several years the city has been receiving only low sulfur fuel oil. Now, because of the fuel crisis, it is permitted to use ordinary

fuel oil. City dust and inadequate greenery trap dust in the air in comparatively high and long-lasting concentrations.

Ivan Cherkezov is also sure about something else: To implement environmental protection programs, we need a law that will untie the council's hands. According to him, the project published a long time ago is quite incomplete, and the method is not sufficiently convincing. He is sure about something else, too: Local pollutants are in small quantities; the big problem lies on the other side of the Danube.

Chlorine Gas Clouds Over Ruse

Year	Number of Clouds	Concentrations Above the PDK [Maximum Permissible Concentration] of Mineral Chlorine Acids
1982	26	Up to 3 to 15 times
1983	33	Up to 5 to 29 times
1984	56	Up to 9.2 to 42 times
1985	47	Up to 6 to 31 times
1986	63	Up to 6.24 to 28 times
1987	128	Up to 8.58 to 30 times
1988	59	Up to 5.6 times

According to data from KhEI [Hygiene-Epidemiological Institute], Ruse

It is true that, in Gyurgevo [Giurgiu], the chlorine plant has been closed. The familiar for many years chlorine and chlorine ions are rarely found in the city air. But they have been replaced by new agents that still have not been identified. The Vulkanzit plant, which provides basic materials for the rubber industry, is functioning, and the lack of this product would create losses for a number of other industries in Romania. Perhaps this is why the discussion within the special commission of experts is so persistent: Our specialists insist that the installations have corroded and must be removed, whereas the Romanians insist that, by modernizing them, environmentally safe parameters will be reached. For now, things remain to be decided by the already agreed upon international commission of experts. And what do we do in the meantime, until some decision is made?

While awaiting a decision, some irreparable things can happen. The KhEI laboratory in Ruse, which for years has studied pollution, is in sad shape. It does not have modern equipment. Gas chromatography analysis equipment that had been acquired was left to the former Committee for Environmental Protection, and the atomic absorption apparatus left to BAN. Samples taken in Ruse are sent to Sofia for analysis. But KhEI has not been getting back the results of the analyses. In principle, the minimum delay in getting information regarding the type of pollutants is about two hours. On top of that, inconsistent methods are used, and sometimes the data received at KhEI and RIOPS [Regional Environmental Protection Inspectorate] do not agree. And in Gyurgevo there is not just any plant, but a plant for chlorine products and chlorine reservoirs. If they explode, nothing will be left alive in Ruse. Chlorine is the base for some modern as well as old chemical warfare substances.

Cases of Cancer in Ruse (per 100,000 persons)

Year	Totals		Lung Cancer		Breast Cancer	
	Bulgaria	Ruse	Bulgaria	Ruse	Bulgaria	Ruse
1980	233	256	30	29	46	48
1981	256	257	30	35	44	49
1982	238	277	31	29	50	63
1983	238	259	32	28	48	55
1984	243	260	32	28	48	56
1985	233	255	31	38	50	47

Cases of Cancer in Ruse
(per 100,000 persons)
(Continued)

Year	Totals		Lung Cancer		Breast Cancer	
	Bulgaria	Ruse	Bulgaria	Ruse	Bulgaria	Ruse
1986	251	259	33	31	52	44
1987	254	281	32	29	53	67
1988	259	294	34	35	55	61
1989		298		36		77

According to data from the Okrug Oncological Dispensary, Ruse

During one of the Save Ruse Committee meetings, we heard the paradoxical proposal to build a system of water sprinklers that would dissolve oncoming gas clouds. This borders on being utopian but nevertheless shows the level of loss of faith. It is more sensible and quite normal to build an automated measuring system. So Ivan Cherkhezov is racking his brains with the equation: 800,000 West German marks plus 400,000 leva equals an automated measuring and early warning system. So far, the West German ambassador has received a letter with a request to grant the equipment for free.

Only, not everything can be had for free. Dr. Galina Gancheva, chief physician of the Oncological Dispensary in Ruse, is looking for about \$200,000 for a superficial and deep telegammatherapy machine. The one she now has is more than 30 years old and is unreliable. Treatment of many cancer cases is delayed because of frequent malfunctions of the machine; it is ineffective. The folder containing letters to councils, ministries, and committees is growing. At specialized equipment shows, the doctor is by now embarrassed to negotiate with company representatives. Finally, the MNZ [Ministry of Public Health] has looked into the matter: The dispensary is first on the waiting list for such machines, and that is where it has remained. There are no shipments. The possibility for barter exists: One of the two manufacturers has agreed to exchange equipment for Bulgarian wine. But Vinprom also has its own problems.

The number of cases, however, is growing. Breast cancer in women is increasing at high rates. A screening (total testing) of 3,500 children over a period of 40 days shows deviations from the normal in one-fifth of them. And this happened at the time of the examination. In the control group of all 350 children from the Slivo Pole village, there are three times fewer deviations.

Doctors do not tend to make definite conclusions in principle. The data in their notebooks should be subjected to more precise analysis so that the jump in morbidity and the relationship between pollution and permanent damage can be studied. And, again, there is the lack of sufficient information. But it has an opposite effect. There are 889 more abortions than births in the first half of this year. The birthrate is also decreasing. Put simply, Ruse women do not wish to have children because they are afraid of the growing numbers of congenital malformations, injuries, and spontaneous abortions.

Actually, this is already the name of the pain—the same one that years ago pushed these same women to the street in a desperate protest against silence. Years had passed since the first measurements were made in 1981. The same number of years had to pass again for state institutions to commit themselves to some more realistic and hope-inspiring policy. Ruse's residents, however, are not inclined to live any longer only with hope. Political differences did not disappear, but the common goal has united everyone. If the Save Ruse Committee manages to maintain the correct tone and efficiency, it can quickly become a factor to which everyone will pay attention. The lines of cars in front of the Danube bridge blocked by the Civil Courage [group] showed that the time for desperate measures has not passed at all.

If we carefully examine the data tables, we will understand that, for years in a row, Ruse has been nothing more than a chemical-testing site—a testing site with more than 200,000 inhabitants. Probably somewhere in the world, something similar has happened at some time. It is certain, however, that decades have passed since the last of such cases, at least in the developed countries. The ecological catastrophe in Ruse is happening now. And this is most absurd and unacceptable.

Averaged Values for the Various Pollutants in Ruse

Pollutants	7th 5-Year Plan		8th 5-Year Plan		1986		1987		1988		1989	
	mg/cubic meter above PDK ¹		mg/cubic meter above PDK		mg/cubic meter above PDK		mg/cubic meter above PDK		mg/cubic meter above PDK		1;2mg/cubic meter above PDK	
Dust	2.81	18.7	0.45	3 times	0.5	3.3	0.80	5.33	0.45	3 times	0.17	1.13
Sulfur oxides	0.29	—	0.019	—	0.036	—	0.038	—	0.063	1.27	0.044	—
Lead aerosols	0.0051	7.29	0.0015	2.65	—	—	0.0015	5.03	0.0013	4.33	0.0003	—
Nitrogen oxides	0.204	2.44	0.033	—	0.028	—	0.071	1.78	0.064	1.55	0.035	—
Inorganic acids	0.074	9.25	0.006	—	0.006	—	0.014	1.75	0.014	1.75	0.005	—

¹Maximum permissible concentration

CZECHOSLOVAKIA

Finance Minister Comments on Ecological Problems

90WN0309C Prague HOSPODARSKE NOVINY
in Czech 29 Aug 90 p 3

[Article by Eng. Vaclav Klaus, doctor of science candidate, Minister of Finance of the CSFR: "The Economy, Economics, and the Ecology (An Economist's Twenty Theoretical Points)"]

[Text] We are presenting an unusual article, both in form and content, to our readers. Several years ago (in 1986), when the article was written, its author—the Minister of Finance of the CSFR—tried to clarify the relation between economics and ecology, two aspects of social life whose interaction is an increasingly popular topic both in the media and as the subject of profound scientific investigation. The contribution that the author has now offered us clearly belongs to the second category; its aim is not to popularize the given problems, but to arrive at more profound conclusions and to find ways to resolve a large number of specific problems that are becoming apparent in this area.

Two Apprehensions and an Outline of the Author's Own View and Approach

1. An economist's first apprehension issues from the extremely broad spectrum and great variety of ecological literature with which he is faced. Apart from the unmanageable volume, there is also the problem of the difficulty in "grasping" the ecological problems through the much more homogenous tools of his own discipline. That is why an economist does not advocate narrowing the range of problems, but seeks a uniform paradigm; that is why he considers the transition from all-encompassing (and yet encompassing nothing) system

approaches to a more sober analysis of individual scientific disciplines to be absolutely necessary; and that is why he offers noneconomists a brief outline of the approaches of his own discipline.

2. The ecological problem obviously is not a natural problem since, in essence, it is a social problem. Therefore the key to investigating it must be the social sciences, foremost among them economics. It is a matter of the consequences of human behavior, and the effects of complex mechanisms and processes that result from this behavior and that are the domain of social sciences. The second apprehension reflects the feeling that in debates on the ecology, so far, too much weight has been given to the utopias of dreamers on the one hand, and to the engineering attitudes of technicians and "system experts" on the other hand, which in both cases leads to an underestimation of the complex structure of social relations.

3. As a result of examining these complex structures, the social sciences drew a number of conclusions, foremost among which is, perhaps, the fact that the more complex the system (and the problems it causes), the less able the intellect (of an individual or an institution) is to master the whole system, the smaller the chances of the experts (the embodiment of intellect!) and the decision-making entity influenced by him, is to master the problems of the system, the greater the role of the autonomous entities and their interactions in solving the problems of the system must be. Social systems are undoubtedly complex systems, and therefore it is inappropriate for the social sciences (and scientists) to offer material solutions; they should only offer suggestions for institutional solutions, which themselves can solve (or not solve) a material or, in given circumstances, an ecological problem. The entire following article was written in the spirit of this approach, and therefore it does not contain any concrete, material suggestions, but concentrates on general problems—it argues that the

observation of certain economic principles leads to ecologically rational behavior, it shows what obstacles are set in the path of implementing these principles in practice, and it specifically names the problems ensuing from our institutional organization.

Some Elements of the Economic Paradigm

4. At first glance, economics exclusively, and regardless of any other factors, deals with seeking paths toward a maximum growth of social and individual welfare. But that is only half the truth because, in addition to the "growth" aspect of the science and in total harmony with it, there is the parallel "saving" aspect. Economics never asserted the requirement of maximizing output (production), but always the requirement of maximizing effect, the profit or use, i.e., the difference between the value of input and output. Economists—in accordance with the general practical principle of comparing the expenses of and revenues from arbitrary human activity—advocate a specific concept of rationality and apply it to all the problems they are dealing with, including ecological problems. These principles are not entirely speculative in nature. Economists believe that human behavior in the economic sphere truly is guided by them; however, society-wide efficiency will only be attained when there is a very extreme institutional organization. This situation is created in model systems called "total competition" or "total planning." For an economist dealing with real economic systems, these principles represent the expression of the standard economic paradigm, the structural basis of economic theory, and a stable point for evaluating these systems, and for evaluating the divergence of their performance from the ideal system.

5. The starting point for economic reasoning is the concept of scarcity, which results from the conflict between limited available resources and unlimited human needs. This also defines the subject of economics. The fact of scarcity results in the need to seek conditions of optimal allocation of scarce resources between their alternative use (the task if one accepts the existing institutional organization), and the need to seek institutional organizations, that would enable the most complete realization of these conditions in real economies (the task if an unsuitable institutional organization exists and if it is possible to change it).

6. The measure of scarcity of resources (and economic goods altogether) is expressed by the price, and that is why economists consider prices to be the most important source of information for the decisionmaking of economic entities. (For the time being we will ignore the question whether price provides the correct information in all institutional organizations, and whether the economic entities really take account of the price information.) When an economist thinks of nature, he thinks of "natural resources," and subjects them to the same criteria as other resources, and orients himself according to their price. It is price that differentiates them from other noneconomic aspects. Without price, the economist and all human activities in the economic sphere are

blind. That is why he cannot see any way to work with ecological quantities, other than on the basis of their economic pricing. (A price may take various forms, it can be explicit or implicit, it may be written on the product, but it may also only be a bookkeeping entry in the enterprise's accounts.)

7. The dominant status of prices in the framework of the economy is accompanied by the conviction (based on observation and evaluation of the past) that the system of price creation, basically speaking (from a long-term point of view), works, that sooner or later every scarce resource will have a price, and that this price will be more or less equitable. Admittedly, the price system does not, in fact, function according to simplified textbook diagrams, but it does assert itself, irrespective of the obstacles in its path. As long as economic entities exist and interact in the economy, there will also be prices. (The more the entities and their interaction are interfered with, the worse the quality of prices will be.) The reverse side of the economists' conviction is their inability to imagine a reason and mechanism for the creation of prices for resources that are not scarce. (However, ecologists foresee a significant historical reversal in the scarcity of economic resources and are afraid that prices will not supply the necessary information about it.)

8. Prices are the basis of costs, and costs are the basis for comparing options. In the world of scarcity, there is always the problem of choice, and no goal is absolutely superior to other goals (not even ecological goals). This comparison of alternative activities is based on the evaluation of so-called opportunity costs, which is a hypothetical loss (lost profit) from unrealized other activities, not real costs expended for a specific activity. All ecological measures must be evaluated this way.

9. Economic evaluation is done on the basis of marginal conditions, in other words, according to the assessment of costs and income from the use or nonuse of the last unit of the resource. This marginal reasoning is the reflection of economic processes, it expresses their connection, it issues directly from the optimization of effect, it is a matter of differential and derivation. It targets the decisionmaking of the entity, it is the basis of economic utilization of resources, and it is a stricter principle than the use of average quantities. A resource should be used as long as the contribution by the last used unit is beneficial to the total effect.

10. Economic marginal reasoning enables the evaluation and effectiveness of small changes (from the point of view of the economy as a whole), and simultaneously it also inhibits major incidents and disastrous failures. It recognizes the past, and deals with adding something very small to the enormous whole. If the economy as a whole were to be protected by this kind of decisionmaking, economic rationality would be ensured (as would protection against ecological crises).

11. Effective allocation of resources is interpreted exclusively subjectively, the so-called Pareto Effective Allocation only occurs when no reallocation can be implemented in such a way that one entity will be better off than before while the others will not be worse off. The economy does not question what is included in the purposeful function according to which entities evaluate the alternatives "better" and "worse"; tastes and preferences are given for the economist—the principle that the consumer is sovereign applies.

12. The nature of economic behavior is continuous; through economic entities it is constantly compared in the past, the present, and the future, and due to this, economics is the only discipline that deals with the problem of comparing various time periods, and it has even worked out a specific device to do so. It is based on so-called discounting, the expression of the difference between the present and future value is the interest rate (again price), and the extent to which the future value (B) can be seen in the present as (P), the extent to which the future is "smaller" than the present, i.e., the extent to which the future is less significant than the present depends on the size of the interest rate (i), and on the length of the time period (n). The formula: $B = P \times (1 + i)^n$ shows that, for example, if $i = 6$ and $n = 20$ (years) the future value $B = 1$ in the present will be seen only as $P = 0.15$. Therefore even ecology must not expect different treatment from economic entities in respect to the future.

Problems With the Realization of These Principles in the Reality of Contemporary Economics

13. The entity's view of the economy has difficulties with the external savings and losses category, that is with effects caused by the economic activity of one entity on the activities of other entities. These effects are not entered in the internal calculations of economic entities either because they do not have a price, or because no other entity exacts this price. (The problem is even greater in an economy where the borderlines between entities have become blurred.) These externalities are extremely relevant especially from the ecological point of view, where the breakdown of traditional economic mechanisms opens the door to purposeful state intervention.

14. The textbook model of general equilibrium (the state of economic optimum) assumes the existence not only of present, but also of future markets for all economic commodities. In reality, these future markets almost do not exist. Therefore economic entities may underestimate the future, or may inadequately foresee future changes. However, economists do not believe in the efficacy of alternative mechanisms, and thus they recommend "waiting" for prices.

15. The prices of products and production resources, for institutional reasons, do not express the true scarcity

of these commodities, and thus provide wrong information to economic entities on which to base their decisionmaking.

16. Price information is not sufficiently taken into account for many reasons. This is because economic entities cannot, or do not need to, observe the principles of economic rationality (due to the intertwining of the vertical structures the economic subjectivity of enterprises is damaged, due to the paternalistic attitude of the higher levels of the hierarchy toward the lower ones, enterprises have a protectionist attitude against negative external influences, due to the prevalence of soft budgetary restraints of enterprises there is excessive demand on resources even without the equivalent effects). Ignoring price information means that other criteria prevail in decisionmaking—however, economists do not know any that are better than those based on scarcity (to deal with natural resources).

The Consequences of These Problems on the Ecological Situation in Real Economies

17. The lack of punishment of externalities, caused not only by difficulties in their evaluation, but also due to the incompleteness and lack of consistency in a feeling of ownership toward natural resources (particularly in a situation where they have mostly become publicly owned), due to the complexity of state intervention (without high-quality prices and without a clear separation of the jurisdiction of the center and the enterprises), and due to incomplete evaluation of the consequences of the externalities (with an enormous burdening of the center and enterprises in mastering current, everyday activities), has resulted in the excessive devaluation of all resources, particularly of natural resources, because it is these very resources that have not been given adequate protection on the part of the economic entities.

18. The inadequate mastery of the role of coordinating economic activities, and the resultant precedence of the present over the future, particularly in an economy of our type, has resulted in the clear prevalence of the accounting balance principle that ensures the elementary consistency of the economy (joining the production of one chain-link of the economy to another) over the efficiency principle that seeks the optimal (and thus economical) solution and, due to this, natural resources are misused without regard to economic rationality, and without considering the future.

19. Through insufficient evaluation of natural resources (due to a priori theoretical assumptions, due to curbing the production factors market, and also due to the fact that in a specific institutional organization they are not supported by loudly proclaimed interests) the belief prevails that these resources are totally, or almost totally, free. This leads to an excessive demand for these resources and to their inefficient utilization.

20. Since the economic activity of enterprises (and the decisionmaking of central authorities) is not subject to the principles of economic calculations, the enterprises

strive to obtain the maximum allocation of resources of all kinds (the well-known suction reflex of enterprises), and since permanent shortage (deficit) prevails in the economy, causing the loss of yardsticks and making it necessary to safeguard oneself against the uncertainty of deliveries of stockpiled resources, there is a resultant excessive draining away of natural resources.

Use of Economic Tools for Environmental Protection Viewed

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(supplement) in Czech 5 Sep 90 p 3

[Article by Eng. Jaromir Kovar, Ministry of Finance of the CR [Czech Republic]: "Will the Economy Help Ecology?"]

[Text] Changes in the economic mechanism must naturally also be reflected by changes in economic tools for environmental protection. The effectiveness of former tools was considerably limited by the system of planned management and by directive regulation of the economy. Despite the fact that the economy and ecology are the focus of interest at this time, their interconnection has not been resolved. However, if we wish to be successful in improving the environment, we must also change the former approach to environmental protection within the framework of the new economic tools. The author points out some problems in the function of economic tools for environmental protection, and at the same time submits several suggestions for changes in the immediate future.

It is undeniable that every economic activity affects the environment—usually negatively. Therefore if an enterprise, as an entity participating in economic activity, wishes to act in a manner that will protect the environment, it must ensure the clean-up and elimination of waste materials. But this entails increased costs not only for the relevant investment, but also for its operation. Thus it is linked with specific costs for the enterprise, and is therefore uneconomical for it. In other words—the enterprise can achieve greater efficiency at the expense of the environment. This attitude was advocated not only by the enterprises (which is understandable), but also by the managing agencies.

It Cannot Be Done Using Old Approaches

The introduction of fines for polluting the water and the air, introduced in the 1960's, can be considered to be an attempt to resolve the above-mentioned inconsistency. They were intended to equalize the economic conditions of organizations with cleanup equipment and those without. Despite the fact that these fines have existed for over twenty years, they have basically not fulfilled their function. In part, the reason was the form of settlement from the planned expenditures of the enterprise (however, there were no significant changes even after 1987, when a smaller portion of the fines were stipulated to be unplanned), but mainly it was because of low rates.

The fines should always be higher than the costs for operating cleanup equipment. However, this requirement was only enforced relatively consistently in relation to fines for discharging waste waters; these fines were increased in 1980 and 1989. But their increase always lagged behind the operating costs, and according to investigations, there are a number of enterprises even now where the fines are lower than the corresponding costs for the operation of a waste water treatment plant.

In 1967 the amount of fines for polluting the air were anchored directly in Law No. 35/1967 Sb. [Collection of CSSR Laws] on measures against air pollution. To date this Law has not been amended (despite approximately eight years of preparations), and the polluters pay according to rates set up in the mid-1960s. Therefore there is no need to emphasize that currently these are merely symbolic amounts. The fact that specific polluters compensate for less than five percent of the damage to the environment is further evidence of the minimal rates.

The basic prerequisite for the immediate future must be the liability of every enterprise for polluting the environment. At the same time, economic tools will gradually take over the tasks of the plan and of central management. The significance of the fines will be given by the fact that decisions on measures to be taken for environmental protection will primarily be made by the enterprise. The amount of the fines must be such that it will influence its decisionmaking.

Establishing the principle according to which the amount and rates of these fines will be determined is important. There are a number of alternatives, ranging from equivalent costs for clean up, to quantification based on damage caused or on health hazards, through to alternatives that are implemented abroad. In the immediate future, i.e., in 1991 and 1992, it would not be realistic to consider introducing a totally different principle in our country. However, it will be necessary to adapt this economic tool as far as possible to a market economy in the future.

At the same time, a decision will have to be made as to whether, after appropriate adjustments, these tools will continue to be regulated individually for specific elements and sectors of the environment, or whether they will be encompassed in one comprehensive tool (see, for example, the so-called standard tax for damage to and exploitation of the environment, which was considered earlier). The second alternative has the advantage that its preparation and introduction can be an integral part of the changes taking place in the economic sphere. At the same time, the existing individual tools would be unified and brought under one umbrella, and others that are now being contemplated (e.g., for solid waste) would be added.

This comprehensive tools also assumes fines for the exploitation of the natural resources of the environment. At this time in our country, these elements of the

environment are not evaluated, and their exploitation is not subject to fines. If we pay for an element at all (e.g., raw materials), we merely pay for the mining or the delivery. Therefore, above all, one will have to decide what (which elements), how (on what basis and in what amount), and in what form it will be expedient to impose these fines.

Apart from the above-mentioned fines for damaging (or exploiting) the environment, there will naturally also be additional economic tools, especially fines and compensation for damages. The significance of fines, as the only sanctions with all the consequences for the enterprises, should grow in the near future. Also the presently much-criticized liberality when imposing fines, and the question of authority to do so, whether by the national committees or the inspection agencies, should be resolved.

Responsibility for Investments

Economic tools must put enough pressure on enterprises to motivate them to take the appropriate measures; however they themselves will not improve the environment. The problems can be solved primarily through investment activities. In connection with this, one must realize that, in the past, decisions on investments were made primarily by central authorities, and financial resources were assured for all actions included in the plan. Thus the enterprise's own initiative and interest in realizing the actions were minimal. Environmental actions were not profitable for the enterprise, and neither the relevant economic tools nor the legal standards directly forced the enterprises to implement the appropriate measures. When some further deficiencies (e.g., the guaranteed delivery of these investments) were added, a complex of problems was created that prevented the fulfillment of the set objectives for environmental protection. Thus not even the more intense activity of the central regional planning agencies (including the so-called State Program of Ecological Investment), which normally was purely administrative, could resolve the situation.

In the future it will not be possible to base actions on approaches in accordance with the eighth Five Year Plan, even though there are still some attempts to continue to implement them. The ecological policies of the state should be founded on the principle that the responsibility will be borne by the individual enterprises, and the center will not intervene in this sphere through directives, but only indirectly through economic tools. The enterprise itself must be interested in the relevant ecological action, and must put it into operation even without an ecological investment program. The agencies responsible for the environment should only have a list of pollution sources that must be removed on a priority bases or step-by-step, and they must create the appropriate economic pressure (increasing the fines for polluting the environment, more stringent fines, etc.).

However, understandably, in addition to the passive pressure on enterprises, it will be necessary to support ecological investments actively through financial aid from the state. This aid may be uniform (i.e., the same share for all actions) or individual (differing amounts, for example, depending on the income of the investor). A goal-oriented solution in the case of nonreturnable aid is, obviously, the first alternative. However, it is questionable whether this could be implemented to its full extent in the near future.

Aid for ecological actions from central authorities can be in the form of subsidies or repayable financial aid from the state budget, bank credits, and subsidies (or possibly loans) from goal-oriented ecological measures. Subsidies from the state budget should be granted primarily to enterprises that are directly linked to the state budget (i.e., the present budget-supported and self-supported organizations, and organizations with a so-called direct financial relation to the state budget). Furthermore, in exceptional cases, subsidies should also be targeted at actions that are unusually expensive and that will profoundly affect the environment.

A bank credit is a new category of financing actions to protect the environment. Up till now, the State Bank has not granted such credit because ecological actions did not fulfill its policy of repayment. However, as of 1990, the banks are changing their policy, and it will be possible to obtain a loan even for ecological actions as long as repayment is guaranteed from the enterprise's other activities. Therefore in the immediate future, the determining factor will be the extent to which both sides (banks and enterprises) will make use of this new option.

In the future, subsidies (possibly loans) from goal-oriented ecological resources (state funds) should become the major source of state financial aid. Presently in our country we have goal-oriented financial resources that are concentrated in the State Water Management Fund and the Air Protection Fund. They are created from the revenues from fines for polluting water and air, and are then used specifically to solve problems in these sectors. Opinions on the former function and future existence of these funds differ.

The Role of State Funds

Evaluating the effectiveness of both funds over the twenty years that they have existed is not easy. The subsidies that were provided positively affected the realization of ecological actions. On the other hand, negative effects have also become apparent, such as the low priority of ecological investments, inadequate motivation of the enterprises to realize these actions, problems in ensuring delivery, etc. However, the financial resources were not the primary determining factor for the realization of appropriate investment actions; this was the inclusion of the relevant actions into the plan, in which case the resources for these actions were secured within the framework of the financial plan. The total effect of these subsidies from the above-mentioned funds

was thus minimal, and the holders of the fund had no opportunity to influence the realization of specific systems and measures for environmental protection.

Therefore there was relatively little interest in subsidies from the funds in the past. The growth of the balance of the funds demonstrate this. The environment gradually deteriorated, and yet the resources set aside to protect it were not used. This confirms that the problems in environmental protection up to now have not been caused by lack of financial resources, but by neglecting to include the relevant actions in the plan.

In the new economic mechanism the status of the state funds should change considerably. Investments will not be determined by their inclusion in the plan, but by the activity of the relevant polluter, and particularly by the securing of financial resources. This means that the role of these funds will grow significantly.

The question of resources, which limit the options for financial support for ecological actions, will be important. There should be an increase in resources by amending fines for polluting water, and particularly air, and collecting fines in other areas of the environment. It will be necessary to consider proposals for using some additional fines, collected from other sectors of the environment and natural resources, that previously were revenue for the state budget or for the budgets of the national committees. Resources collected from the expected fines for the exploitation of the natural environment (natural resources) are a totally separate matter. Should one succeed in concentrating all these fines into a goal-oriented resource for environmental protection, it could multiply many times over within a relatively short period.

The second basic question is expenditures from the funds. A fund is not solely a source of financial resources, it is also an important economic tool, which must be an integral part of the financial and budgetary policies of the state. The financial policies of the fund, which will bear in mind all specific areas to which its resources will be allocated, must be worked out on this basis.

The funds' resources are and will be only one of the sources for financing ecological actions. The investor's own resources should remain the primary source and, in addition, it should be possible to utilize subsidies from the state budget and, as of recently, bank credits. Therefore there must be some "separation of roles" between the individual financial sources. This primarily concerns state funds and the state budget, but it also concerns other funds and the enterprises' own resources. Naturally, under the new economic conditions, the enterprises will be interested in obtaining the maximum amount of subsidies from the state funds, and they will use their own resources for actions other than ecological ones.

For example, one should consider the possibility of making noninterest loans, or loans that have other benefits, available in the future. Furthermore, one should consider subsidies for actions that do not directly improve the environment, but could indirectly affect it very positively (for instance, aid for delivery capacity, or for technological products). One should also weigh other actions (e.g., the removal of radon or polychlorinated biphenyls).

Lately there has been pressure to combine the above-mentioned state funds into one "central" state fund—the so-called Unified Environmental Fund. These suggestions came to the forefront due to the establishment of the Ministry of the Environment. But currently there are also suggestions to set up another fund, the Federal Environmental Fund, and to set up Kraj or regional environmental funds.

This is a natural attempt by all agencies responsible for the environment to have at their disposal the possibility of obtaining financial aid for some actions and measures. But one must realize that goal-oriented resources for environmental protection will be limited on the basis of collected fines—and a larger number of state funds will not mean an increase in resources. What will be decisive will be the volume of the resources and, above all, their effective use.

The interconnections between ecology and economy are very wide-ranging. There are other sectors that will have to be reassessed—for example, the connection between prices and ecology, furthermore, tax obligations (or the possibility of tax relief to support ecological measures, etc.). The ultimate goal of all these regulations and changes should be the creation of a climate in the economic sphere, such that environmental protection will become an integral part of all economic and other activities.

Waste Water Purification Problems Discussed

90WN0309A Prague *HOSPODARSKE NOVINY*
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[Article by Eng. Petr Soukup, Central Bohemian Water Supply and Wastewater Works, Prague: "The Law Favors Septic Tanks"]

[Text]

Will the Purification of Waste Water Ever Be Improved?

Water passes not only through a natural cycle, but also through a cycle of utilization, which can be divided into the following elements: water course, withdrawal and treatment of the water, distribution to the consumers, consumption, collection of waste water, purification of this water, and then water course again. With the exception of water course protection, this whole cycle is supervised and safeguarded by the Kraj water supply and sewer enterprises. However, the conditions under which

they did and still do this are far from ideal. The fact that the system functions and that there is a relatively sufficient supply of water, has taken the focus of attention away from the problems of water quality protection.

As a result, the construction of water treatment facilities lags considerably behind the development of housing construction and the development of industry. The treatment facilities that we have at our disposal often cannot deal with the constant degradation of the quality of the water sources. The characteristic feature of the past approach was to deal with the consequences, and not the causes of the given situation.

The state of waste water purification, with the exception of breakdowns, is hidden from the public; it affects the public only indirectly, and with a time lag. To illustrate this, let us mention that about 72 percent of apartments were hooked up to the sewer system in Bohemia and Moravia in 1988, but only 73 percent of the waste water from them were purified. The level of waste water purification is not consistent in the individual Krajs; it is worst in the East Bohemian Kraj where 64 percent of the apartments are hooked up to the sewer system, but only 28 percent of waste water is purified.

The Absurdity of a Partial Solution

The obligation of the polluter is to purify the waste water in accordance with the law. Therefore new construction is contingent on proof that this condition will be met. The necessary measure of purification should also be ensured in old sources of pollution; however, until the necessary measures have been implemented, the polluter must request an unpopular exemption from the law, to be more precise, he must request permission to discharge waste water with a variance from the Water Law. adamant insistence on legal and technical standards could cause the present unsatisfactory situation to become firmly implanted, however absurd this may sound.

This concerns such cases where the water quality makes it impossible for the designer to design purification facilities that would guarantee conformity to the law. And since it is not possible to prove that the designed facility will operate with adequate efficiency, the construction approval is withheld—and instead of a possible 90-percent decrease in the former discharged pollution, the situation remains unchanged. Yet the initial data on its quality and flow rate are frequently totally inadequate. Only in exceptional circumstances is the necessary long-term tracking available. Nevertheless, the necessary measure of purification, and thus also the feasibility and total cost of the solution, are established on the basis of such problem-laden data.

The obligation to ensure waste water purification in accordance with the law leads to the acceptance of partial solutions at the expense of a comprehensive solution for the entire locality or region. At the same time, it forces one to give preference to financially

inexpensive solutions and access to supplies over operational and functional aspects, which, however, are imperative to attain the objectives of construction.

A typical example is a case where no systematic sewer system and central purification plant for waste water has been constructed in the community, and it is obvious that constructing a comprehensive sewer system and waste water purification plant cannot be achieved in the near future. If the investor or builder of the new facility (school, shopping center, town houses, etc.), wants to realize his objective, he is forced to choose the most easily accessible solution, irrespective of its efficiency from the broader point of view, and irrespective of possible problems in the future. If we consider that the system for waste water purification should function smoothly and continually for thirty or more years, such an approach is totally unacceptable, and the law should prevent it, not cause it.

In the case of individual structures, or groups of them, the conflict between the demands of the law and the real options is often resolved by using nondischarge sumps and septic tanks. Generally, this is an unsuitable alternative because it merely postpones the problem and puts it on a different level—because it does not solve the problem of what to do with the retained sludge, which is in various stages of decomposition and does not conform with the necessary health standards.

The Polluter Is Protected

In my opinion, the negative effects of the present legislation in respect to waste water can be eliminated through a legal regulation of the procedure. Cases where the optimal (legal) state has not been attained, but the waste water is treated to the highest possible level using current technology, or where it is provable that a purposeful solution is being implemented gradually and that the process has already been ensured but has not yet been completed, should not be considered as a violation of the law.

The former legal and economic management tools were aimed at the individual or entity that discharged waste water into the water course. In our case, these are still primarily water supply and sewer enterprises. They, however, are not the real polluters; the real polluters are the citizens, industry, and agriculture. Water supply and sewer enterprises, to the contrary, remove the pollution. With constant water and sewer rates and higher payments for discharged pollution, it has become very apparent, just how unrealistic it is to expect them to be economically self-sufficient. The true polluter, at whom the control tools should be aimed, remains on the sidelines and, in fact, is protected.

The public attitude toward the water supply and sewer enterprises is that they are the polluters, and it does not understand that in the sphere of water management these enterprises are, in fact, the main protectors of water purity. What is incomprehensible, however, is that this attitude is also reflected in the aims of the legal and

economic tools. On the one hand, they make absolutely justified demands, but on the other hand, they have not equipped water supply and sewer enterprises well enough to enable them to take effective measures against polluters.

It Is Wrong To Hesitate

If we take a look at the incomplete solution of legal and economic intervention measures in the environment as a whole, it becomes obvious that water supply and sewer enterprises are in a difficult situation at this time. The lack of clarification for the next few years, the direct dependence of the water supply and sewer enterprises on the changing state administration, and their objective lack of economic self-sufficiency, negatively influence the stability of their organization, and thus also the stability of their activities. Since, for the time being, the water supply and sewer enterprises are irreplaceable in assuring drinking water and protecting surface and ground waters, this situation—and the possibility it may deteriorate further—is unacceptable.

The primary necessity is that the present quality of drinking, ground, and surface waters must not be allowed to deteriorate. A prerequisite for this is not only to set up the necessary legal and economic tools, but also to stabilize the enterprises by severing their direct dependence on the changing state administration. The management of water supply and sewer enterprises during the transition period to a new economic system should be taken over by a central agency, at this time probably the Ministries of the Environment of the CR and the SR, which are responsible both for water resources and the integrity of the water management plan.

It is wrong to hesitate, because this increases the disagreement between opinions in this sector, and the quality of its activity suffers. It is necessary to remember that the guarantor for water protection as a basic human need must be the state and that destabilization in this area is unacceptable.

Slovakia Said To Obstruct Environmental Legislation

AU011111590 Prague SVOBODNE SLOVO in Czech 27 Oct 90 p 3

[I. Knezinkova report: "Rendering of Accounts"]

[Excerpt] [Passage omitted] [At his meeting with representatives of ecological movements in Prague on 22 October] Minister Josef Vavrousek, chairman of the Federal Committee for the Environment, said that, only an hour before the meeting started, the negotiations on the law on atmospheric protection, which was to be submitted to the Federal Government on 25 October, had foundered on disputes over jurisdiction.

"Why were the negotiations not successful?" the participants in the meeting inquired.

"The Slovak side casts doubt on the principle that norms in the sphere of atmospheric protection—which we tried to harmonize with EC legislative norms—ought to be subject to federal regulations," J. Vavrousek replied. "The republics could then make these norms even stricter, if they consider it important. The Slovak colleagues want to issue them themselves, however."

The participants in the meeting also learned from the minister what is going on at the building site of the Gabčíkovo-Nagymaros Danube dam.

According to J. Vavrousek, the "concrete" lobby is doing what it wants there. Building activities that have been banned merrily continue. And the Slovak Government does not wish the Federal Committee for the Environment to interfere in this matter. [passage omitted]

North Bohemian Children Receive Breathing Masks

LD0511163890 Prague Domestic Service in Czech 1430 GMT 5 Nov 90

[Correspondent Petr Plicka report from North Bohemian Region]

[Text] The Most municipal National Committee today started distribution of 10,000 filter breathing apparatuses. They are earmarked for children over 11 years of age and for teachers. Vridlo Karlovy Vary, the manufacturer of the breathing masks, will, in the next few days, supply another 13,000 pieces for younger children. The masks, valued at kcs 315,000 korunas, are paid for by Litvinov Chemical Works, one of the biggest air polluters in the region. The masks, which cut down the amount of inhaled pollutants, will also be sold in shops.

Ecological Program for North Bohemia Approved

AU0611142490 Prague CTK in English 1703 GMT 2 Nov 90

[Text] Prague Nov 2 (CTK)—A program providing for investments of 20,500 million korunas (one U.S. dollar is 24 korunas) to improve the environment in North Bohemia was approved by the Czech Government today.

All large power stations and heating plants which are to remain in operation till the next century should be equipped with desulfurizing and denitrifying facilities and filters.

Spending on ecological improvements in the area on the border with the former GDR, one of the worst affected in Europe, are to amount to 1,000 million korunas next year.

Coal-burning power stations with the total output of almost 1,000 megawatts are to be shut down in the area by the end of 1994 and their capacity would be replaced by a nuclear power plant at Temelin in West Bohemia.

Czech Environment Ministry Views Energy Issues*LD0711213390 Prague CTK in English 1619 GMT
7 Nov 90*

[Text] Prague, Nov 7 (CTK)—Experts from the Czech Ministry of the Environment think that power consumption in the Czechoslovak economy should be decreased by 30 percent by 2005. This opinion differs from that of the Czechoslovak Economy Ministry which plans an eight-percent power consumption decline by 2005.

Representatives of the Czech Ministry of the Environment told a press conference here today that the extensive development of power production and consumption, price policy and ignoring of ecological aspects have had many unpleasant results. Czechoslovakia ranks seventh in the world in terms of per capita consumption of primary energy and its energy consumption in terms of the gross national product is much higher than in all industrial countries. Solid fuels are the main source of primary energy in Czechoslovakia, accounting for more than 80 percent.

The Czech Ministry of the Environment does not propagate development of nuclear power engineering, being fully aware of all its risks. With regard to the fact that its limited development cannot be excluded in the transitional period, the ministry favours a radical change in the approach of investors towards problems linked with nuclear power engineering. The Czech Ministry of the Environment disagrees with the construction of the third and the fourth units at the nuclear power plant in Temelin, south Bohemia, and recommends that the first and the second units be equipped with a reliable control system, the representatives of the Czech Ministry of the Environment said.

Chemical Plant Director Denies Radioactive Contamination*LD1011064890 Prague CTK in English 1520 GMT
9 Nov 90*

[Text] Prague Nov 9 (CTK)—Director of the Ores Chemical Processing Plant "Mape" at Mydlovary, South Bohemia, Stefan Lasica told CTK today that repeated radioactivity measurements in Mape's vicinity have yielded unequivocally harmless results.

The Mape director talked to CTK in connection with the publication by Czech dailies today of a report by the Austrian Institute of Ecology according to which the plant's vicinity is alarmingly contaminated with radioactivity.

Lasica wondered why the public opinion is again stirred with ungrounded, strongly distorted and false data at a time when official expert institutions and their world-recognized specialists have refuted several times recently the rumours that Mape adversely affects its vicinity.

The report claims that the highly contaminated waste dump does not pose a threat only to the close surroundings of Mape, since contaminated waste has been dumped there since the beginning of the 1950's. According to Bossew, the inadequate storage of wastes can contaminate surface waters for thousands of years.

According to the Austrian institute, its nuclear physicist Peter Bossew carried out ecological research at Mydlovary on request of the Austrian Greenpeace Organization. Measurements allegedly revealed a concentration of 800,00 bq/kg of radium-226 at the Mape waste dump spreading on several hundreds of square metres (natural radium concentration in soil is 50-60 bq/kg).

Stefan Lasica said this question should be dealt with only by real specialists and not organizations lacking necessary erudition and experience.

In conclusion of the interview with CTK, the director said that Mape does not know Peter Bossew and is not aware that he would have carried out an ecological research at the enterprise.

HUNGARY**Minister Notes National Environmental Problems***LD0711221190 Budapest Domestic Service
in Hungarian 1500 GMT 7 Nov 90*

[Text] [Announcer] Hungarian enterprises could afford only the most necessary environmental protection investments in past years. Even with the filters and purifiers which had been made under the pressure imposed on companies by the public, they could not get near the norms of environmental protection which are common in Western European countries. This is why the Bonn-based European Environmental Protection Institute offered their help. They organized a two-day conference in Budapest. Zoltan Sipos reports:

[Sipos] In order to achieve a perceptible difference in Hungary's environmental protection in the short term, which means 2-3 years, 15-20 billion forints and a 30 percent budgetary support are needed, Sandor K. Keresztes said in his opening speech. The minister of environmental protection and regional development analyzed the scale and types of damage that had been done to Hungarian nature in recent times. The amount of waste materials in our country is many times the amount which occurs in a developed Western country. The fate of 600,000 tonnes of industrial waste a year is not known. Thirty percent of the waste of settlements cannot be followed up, either. In only the past few years, 53 species of animals and 42 species of plants have become extinct in Hungary. The ruthless exploitation of our forests has reached an all-time high. The list could be continued.

In the minister's view, the most severe and partially foreseen problem is the fact that it is extremely difficult to take immediate and effective measures amid severe

economical and social problems. It is extremely important, almost absolutely necessary, that the resources which lie in international relations are used in domestic environmental protection, the minister pointed out.

Mandatory Emission Tests, Other Environmental Measures Planned

*91CH0067B Budapest MAGYAR HIRLAP
in Hungarian 5 Oct 90 p 4*

[Unattributed article: "Kaposvar Conference: Next Year Environmental Protection Inspection of Automobiles Will Be Mandatory"]

[Text] A transportation science conference opened at Kaposvar on Thursday [4 Oct]. Environmental Protection Ministry State Secretary Mrs. Laszlo Tarjan told the

conference that revenues derived from the expected increase in gasoline prices will be spent for environmental purposes, and that the annual inspection of automobiles from an environmental protection standpoint will be mandatory. The threshold figures for the emission of pollutants will be made more stringent, and in two years they will begin to install filtering equipment in automobiles not equipped with catalytic converters.

The Ministry recommends that financial support be provided for the rebuilding of automobiles for environmental protection purposes.

In conclusion, they want to cover all these expenses by factoring surcharges into the price of gasoline and automobile taxes.

ARGENTINA

Former Nuclear Commission President Supports Nuclear Dump Idea

*PY1211193090 Buenos Aires DYN in Spanish
1322 GMT 11 Nov 90*

[Text] Buenos Aires, 11 Nov (DYN)—Vice Admiral Carlos Castro Madero, retired, former president of the National Atomic Energy Commission (CNEA), has reiterated his opinion in favor of building a nuclear repository, provided it is "profitable for the country." The dump will be used to store waste produced in Argentina and other countries.

Environmentalists and CNEA technicians have engaged in heated debates and exchanged reciprocal accusations in the controversy over the construction of a "nuclear dump"—as it is usually called—in the Gastre area of Chubut.

The issue has even been discussed in Congress, where a series of projects aimed at prohibiting the import of toxic and radioactive industrial waste have been proposed due to the possible risk to the health of the people.

Castro Madero said he has "absolute confidence in the security of the technology" used in this field. He noted, however, that "no human activity is 100-percent safe."

He said that the area where the preliminary studies were conducted may prove to be inappropriate "in view of a large geological fault which is active enough to necessitate the selection of another site" out of the 197 that were considered appropriate for this use.

One of the most controversial aspects of the issue has to do with a series of charges made by the ecological group "Greenpeace," which alleged that Argentine officials were involved in negotiations to import radioactive and toxic waste from a French company which would pay some \$135 million for the service. Although national authorities rejected this possibility, it could happen in the future if laws prohibiting this type of transaction are not promulgated, the ecologists asserted.

Castro Madero said it would be "acceptable" to receive waste from abroad. "Such a possibility should not be rejected without a detailed analysis of its advantages and disadvantages," the former official said. He added: "If we can store our own radioactive waste, we can do the same with waste received from abroad."

Castro Madero based his remarks on the scant supply of appropriate nuclear waste dumps and the huge demand that exists in the main countries of the developed world, which have not resolved the problem.

Congressmen are divided over the advantages of constructing a dump site, but they all agree that Argentina should not receive waste from abroad.

At the same time, ecologists are inviting officials and congressmen to think about the developed nations' lack of interest in constructing waste dumps in their own territory, despite the fact that they have longer nuclear histories. This problem is like a boomerang because "now they do not know what to do with their waste."

Some nations are apparently ready to receive this nuclear waste in exchange for the cancellation of some of their foreign debt.

The nuclear waste problem has still not been entirely solved. Some waste is buried in temporary underground dumps, and some countries dump theirs into very deep areas of the ocean. There are also other countries, Sweden for example, where the inhabitants have decided through a plebiscite that existing nuclear plants must be gradually dismantled and the construction of planned facilities canceled.

BRAZIL

Government To Prepare Amazonia Ecological Zoning

*91WN0032A Sao Paulo GAZETA MERCANTIL
in Portuguese 10 Oct 90 p 16*

[Article by Francisca Stella Faga]

[Text] By 1992, when it will host the UN World Conference on the Environment, Brazil should already have a complete picture of the Amazon Region. This will be the result of the economic-ecological zoning which is now in preparation and which will serve as a kind of bible for any decisions and any policy to be adopted for the region, Jose Goldemberg, director of the National Secretariat of Science and Technology, told the participants of Forest '90.

Forest '90, a conference of scientists and technicians, sponsored by the Brazilian Institute for the Environment and Renewable Natural Resources (IBAMA) and other entities, is being held in Manaus. They will meet again a week before the UN conference, to draw up the proposals for that meeting.

On 23 September, President Fernando Collor de Mello sent down a decree creating a commission coordinated by the Secretariat of Strategic Affairs (SAE) to prepare the economic-ecological zoning of the country, with priority given to the Amazon Region. Now the SAE will appoint a committee to initiate the zoning.

Tania Munhoz, president of the IBAMA, made it clear that until there is a sufficient volume of information on the Amazon Region, no deforestation will be authorized by the government. Last Monday, Munhoz took part in an inspection operation, recorded on film, that resulted in one of the largest fines imposed to date for deforestation. The IBAMA inspectors discovered that Ghetal Amazonas, S.A., of Amajari, in the middle of Amazonas, had an underground warehouse in Amazonas containing

8,000 cubic meters of noble woods, such as samauba, copaiba, and virola. The company was fined 180 million cruzeiros.

Other notable fines in the millions were also imposed last weekend. Caiue Agropecuarias should pay 119 million cruzeiros for having deforested 500 hectares and the Taboca mining company, of the Paranapanema group, in Presidente Figueiredo, was fined 107 million cruzeiros.

Yesterday morning, the president of the republic congratulated Tania Munhoz for "Operation Amazonia" and lamented that large companies were unaware of the need to preserve the environment.

According to Tania Munhoz, the companies have 60 days to appeal, but they may not do so until they have paid the fines in full. However, Tania Munhoz believes they will have a difficult time getting a reversal, because they were caught in the act.

"The purpose of IBAMA," she said, "is not to collect fines, but to deter deforestation as much as possible."

The participants in Forest '90 have great hopes for the success of zoning.

The zoning will indicate the areas of major biological diversity which should be rigorously preserved, areas appropriate for mining and agriculture, degraded areas, and the rate of pollution of the rivers. It will be a reference for government action. There are those, however, who advocate immediate action to preserve the forest.

Forest engineer Jean Dubois, for example, one of the most active experts in forest management in Brazil, believes that the country faces a serious risk in putting off policy decisions for the region. "By the time they complete this zoning, there may not be any forest left," he joked.

Forest management, a technique aimed to exploit the products of the forest without causing any negative environmental impact, currently has only some isolated applications in Brazil, for the most part coordinated by Dubois. There is the Curua-Una experiment, between the Xingu and Tapajos rivers. The INPA [National Institute for Amazon Region Research] maintains an area under management near the city of Manaus.

Technically, according to agronomist Vatomme Paul, who worked for the INPA during the last 10 years and is now an advisor to the government in French Guyana, there will be political problems in implementing forest management. It requires a great effort to maintain the areas under management; everything takes a long time. There are species that take dozens of years to reach maturity. According to Paul, this is the big difficulty in establishing forest management in Brazil.

Amazonia Colonization Sparks Additional Disease

91WN0032B Sao Paulo O ESTADO DE SAO PAULO
in Portuguese 11 Oct 90 p 22

[Article by Alvaro Caropreso]

[Text] Manaus—The disorderly process of colonization in the last 20 years has brought diseases to the Amazon Region that were once rare in the area, such as Chagas disease and schistosomiasis, which are already on the way to becoming endemic. The warning comes from researchers of the Oswaldo Cruz Institute (Fiocruz) in Rio de Janeiro, who were in Manaus for the First International Symposium on Environmental Studies in Tropical Forests (Forest'90). The Fiocruz figures confirm the data worked up last month by epidemiologist Adelson Almeida de Souza, of the Evandro Chagas Institute (IEC) of Belem.

According to a document drafted by a group of Fiocruz scientists, the small number of cases of Chagas disease reported in the Amazon Region does not rule out the danger of its becoming endemic. This is primarily because the uncontrolled deforestation and colonization have destroyed the ecological balance between the so-called "reservoir animals"—certain species of monkeys which carry the trypanosoma cruzi protozoa—and the vectors, insects of the "barber bug" family (Panstrongylus megistus), which transmit the disease to humans.

According to the Fiocruz document, deforestation has led some species of reservoir hosts, such as marsupials, to become adapted in areas close to centers of colonization, as their only way to find food. Moreover, the migration of infected populations from other areas of the country has contributed to increasing the endemic risk.

According to the scientists, there is a relation between the sylvan cycle of the disease—with native reservoir hosts and vectors—and the domestic cycle, imported through colonization and spread via the system of highways built since the 1970s.

The result is a growing number of autochthonous cases, involving individuals who were born in the northern part of the country and have never left their region of origin. According to researcher Almeida de Souza, of the IEC, in 1969 four cases [of Chagas disease] were recorded on the outskirts of Belem. Between 1969 and 1988, the IEC registered 17 more cases. From 1988 to 1990, however, the number of cases jumped to 16—a large number for an interval of only two years.

In Amapa, the first autochthonous case of Chagas disease was recorded in 1977. In 1983, there were eight cases in the environs of Acapa alone; from 1988 to 1990, there were three more cases in the same area. In Amazonas, nine cases were recorded between 1977 and 1985, and there was a case in Acre in 1984, all autochthonous.

CHILE

Supreme Court Ruling Bans Entry of Toxic Waste

PY0911015490 Santiago *EL MERCURIO* in Spanish
27 Oct 90 p C 8

[From the "Regional News" column by Carlos Herrera Astorga]

[Text] Antofagasta—The National Committee for the Defense of Fauna and Flora, Codeff, has obtained a favorable ruling from the Supreme Court in a lawsuit against Pacific Chemicals Engineer (Chile) Ltd., a company which attempted to bring toxic waste into the country to recycle it in a nearby plant. Codeff attorney Alicia Vidal stated that the Supreme Court ruling has set a precedent and that, from now on, no one can bring in industrial, mining, domiciliary, or any other type of waste, whether dangerous or toxic. Thus, she said, one can file a legal petition even before a specific action which would affect the environment has been taken; the courts will uphold any petition based on the "threat" stemming from the announcement of a future action that would pose a risk or danger or would be detrimental to the people.

DOMINICAN REPUBLIC

Ozama, Isabela Rivers in 'State of Emergency'

91WN0017A Santo Domingo *EL NACIONAL*
in Spanish 6 Sep 90 p 8

[Text] Yesterday evening in the Santo Domingo council chambers the Ozama and Isabela Rivers were described as being in a state of emergency. The rivers have been severely polluted by industrial waste and by trash dumped in the rivers by people living nearby.

The motion was introduced by National District representative, Rafael Corporan de los Santos, and accepted by members of the PLD [Dominican Liberation Party] and the PRD [Dominican Revolutionary Party] opposition blocs.

Corporan had previously retracted his accusation that some PRD members were "mafiosi." Several days earlier he had accused them of using bribes to get specific resolutions passed.

Dr. Ivelisse Prats de Perez, a member of the PRD, had earlier in the session called on Corporan to identify the supposed "mafiosi."

Corporan answered by apologizing, saying that he had not intended to give offense by his statement. He then appealed for harmony and agreement, as he said journalist Leo Reyes had suggested in an article published in *EL NACIONAL* yesterday.

The member representing the capital, when speaking in support of his motion to have the Ozama and Isabela Rivers declared in a state of emergency, promised that

the municipal government would be at the forefront of the campaign to halt river pollution.

The chamber agreed to set up a commission consisting of members with a knowledge of ecology and sanitation so they can draft specific projects to improve conditions in both rivers.

Among other measures, they advocated a cleanup and better sanitation facilities for towns along the rivers. When garbage is not collected, the local residents are forced to dump it in the river.

They also agreed to hold public hearings to obtain technical suggestions for cleaning up the water in these rivers and to ban the dumping of industrial waste by Molinos Dominicanos [Dominican Mills] and by the Fabrica Dominicana de Cemento [Dominican Cement Factory], as well as by other firms.

It was also suggested that an interdepartmental program be conducted by the departments of agriculture, public health, and the forestry division, to reforest the river banks.

Mr. Corporan also introduced another bill requiring private clinics and hospitals to burn their waste in their own incinerators, in order to prevent water pollution and contamination of local residents and municipal trash collection workers.

300 Million Pesos Yearly Reforestation Costs

91WN0017B Santo Domingo *LISTIN DIARIO*
in Spanish 24 Sep 90 p 1-D

[Article by Jose Miguel Feliz]

[Text] Agronomist Domingo Marte has said that reforesting one million plots of land every year, in order to conserve watersheds and other critical areas, will require an investment of 300 million RD [Dominican Republic pesos].

He maintained that to this amount should be added costs for managing restricted areas, infrastructure projects, training technicians, public awareness programs, the development of buffer zones to protect restricted areas, and others.

"Unless we become aware that our natural resources need funding of this magnitude, it will be hard to devise a realistic strategy to develop and conserve these resources, as we might easily minimize the problem," he pointed out.

He indicated that the ideal, which many people would like, would be for the government of the Dominican Republic to provide the resources required to conduct an effective program in order to protect the nation's natural resources.

He said that "until now, annual funding of the public sector providing for activities related to natural resources has never been more than 0.9 percent of the

national budget, and of this percentage, about 85 percent has been for personnel costs."

During the 1968-1988 period, he reported, the organization's budget was between 10.8 and 11.3 million RD, with a similar spending distribution.

He indicated that to date only two public projects for the development and protection of natural resources have received regular funding by the state: the MARENA [Natural Resources Management Project] in San Jose de Ocoa, with joint government and AID financing of 21.1 million RD a year.

He noted that both the Development Council of this community, the organization responsible for the actual execution of the MARENA project, and the Sierra Plan have had to seek contributions from international and national organizations.

"Even though we need to continue to seek greater financial support from the state, it is a utopian dream to think the state could be the only source of financing, and we doubt that payments by the state will rise to the level of the requirements which our natural resources face today, given the pressing needs and urgent requirements facing the nation in other sectors," he maintained.

He indicated that to obtain an increase in the flow of financing, "more striking activities" to develop and protect natural resources must be supported.

He said the state is increasing the funding allocated to: the Forestry Division, the Department of Natural Resources, the Parks Division, and other public institutions, within an institutional identification framework which will target them as primarily supervisory and regulatory agencies.

He said that counterpart resources required by some of these institutions should be first in line for receiving grants and loans.

Millions Spent for Reforestation, More Needed

*91WN0017C Santo Domingo EL SIGLO in Spanish
7 Sep 90 p 12*

[Article by Livio Mariano Cedenio]

[Text] Higüey. During a Rotary Club dinner and lecture on reforestation attended by hundreds of Higüey residents, Dr. Jose Manuel Alvarez pointed out that eastern livestock producers are investing 5.5 million pesos a year in planting trees in the region.

The president of Fedagare [Federation of Cattlemen's Associations of the Eastern Region] has asked the government to provide soft loans for cattlemen in order to provide incentives and support the establishment of energy-efficient ranches in the area.

Dr. Alvarez expressed his views to an audience which included provincial and municipal officials, representatives of the Catholic Church, and other personalities.

The Fedagare president said that in the eastern region of the Dominican Republic there are large rivers and streams which will cost over 14 million pesos to protect with trees.

Illustrating his lecture with a color video presentation, the speaker showed the audience the devastation caused to the province's rivers, streams and lakes by the depletions of our forests, and pointed out that the city lacks drinkable water because sand and gravel companies have caused the bed of the Sanate River, which supplies the Higüey aqueduct, to dry up.

The president of the Rotary Club, Pina Objio, expressed appreciation to the large audience attending the talk on Deforestation and Reforestation of the Eastern Livestock Areas. In addition to the speech by the Fedagare president, a presentation was also given by agricultural engineer Lidio Martinez Cairo, a pasture specialist for Prodeleste [Eastern Region Dairy Development Project].

The persons attending paid 100 pesos a plate, and the funds collected will be used for the Don Pedro Tapia Primary School, which the Rotary Club is building in the crowded Juan Pablo Duarte district, in honor of one of the founders of the service organization.

Dr. Alvarez pointed out that the region's livestock producers are planting 5,500,000 trees a year to help reforest the nation, by using live trees as fencing for their ranches.

He explained that the property owners are investing 5.5 million pesos a year in planting these living fence posts.

He said that the cattlemen have told the National Forestry Division that they will "respect Decree 221-90, will stop cutting trees where they are asked to do so, and are trying to replant in stages."

He said they have also offered "to continue to respect the trees we have and to try to increase them based on the capacity of each ranch, and in pruning the living posts, they will leave from two to three sprouts for reforestation, beautification of the fencing, and the quickest recovery of shade for cattle."

Some of their other proposals are "to support the forestry officials against any cattleman who violates regulations and to serve as permanent forest wardens, without seeking any salary or special favors."

The Fedagare president said they need 14,374,230 pesos to reforest 987 kilometers along river and stream banks in the region which, with the land on both sides, would represent over 94,000 plots which the cattlemen will not be using as pastureland.

Based on an estimate prepared by Fedagare and Prodeleste, Dr. Alvarez explained that in order to reforest those 987 kilometers, they need to invest 6,158,880 pesos to purchase 947,520 trees, at a unit cost of 6.50 pesos each.

They would also spend 987,000 pesos to purchase 39,000 tree stakes at a cost of 25 pesos each, plus 121,950 pesos for 271 hundredweight of clamps, which cost 450 pesos per hundredweight.

Another 4,737,600 pesos should be spent to buy 15,792 rolls of wire, which costs 300 pesos per unit; as well as 2,368,950 pesos to pay for 59,220 days of labor, at a rate of 40 pesos a day.

The Fedagare president said the region has 34 percent of the nation's total pastureland, or 6,773,400 plots, in which 37 percent of the republic's livestock grazes; this is a total of 650,000 head of cattle.

He explained that, as reforesters, the eastern livestock producers have 38 million kilometers of fencing, with 1,000 live trees per kilometer, giving a total of 38 million trees.

He explained that in the east there is an average of one shade tree for each four plots; this represents 1,500,000 trees.

He reported that Agani [Association of Nisibon Cattlemen] has maintained a coconut palm nursery for the past five years. Hundreds of plants have been distributed at various meetings, and they have taken part in lemon tree planting projects with the Romana Federation.

He said the Fersan-Agani reforestation program began in 1987. Last year Fedagare asked Prodeleste to set up a reforestation program. The president of the federation has also met with Benjamin Olvares, the FAO [Food and Agriculture Organization] adviser in the Dominican Republic, to discuss the execution of another reforestation project in the area.

"Trees are needed to protect the pastureland and the soil; water in streams where the trees have been cut down has dried up; and trees and shrubs are needed to protect and feed the cattle," he said.

He criticized the fact that as cattle ranchers of the region, "we cut down everything, without leaving sprouts," and that "we have eliminated 'javillas,' a tree that helps to keep pastureland from being invaded by brush and undergrowth."

To continue reforesting the region, Dr. Alvarez says the ranchers need the support of the National Forestry Division.

"The living posts should continue to be managed according to our own judgment. They should be our natural nursery. We should be allowed to cut down trees outside the area protected by Decree 221-90 without a Forestry permit, and forestry technicians should recommend the best species to use for reforesting. 'Javillas' should be allowed to grow in fencing up to the level of the upper wire; and in pastureland, it should be permissible to replace one tree with another tree that will be more useful," he said.

GUATEMALA

Amatitlan Lake Dangerously Contaminated

91WN0043A Guatemala City SIGLO VEINTIUNO
in Spanish 20 Sep 90 p 16

[Article by Ana Cristina Castaneda]

[Text] Despite the extreme deterioration it has suffered in recent years, Amatitlan Lake is a living body which, fortunately, is not in immediate danger of disappearing, because of its great recuperative capacity.

However, in view of the fact that the causes of the deterioration and the gradual aging of the lake are numerous and varied, it is necessary and essential that the institutions responsible for preserving and cleaning it adopt a more serious and determined attitude in order to halt this process of environmental deterioration.

Amatitlan Lake has an area of 15 square kilometers, and is located 28 kilometers from the capital city of the department of Guatemala. It lies at an elevation of 1,189 meters above sea level.

According to the Military Geographic Institute, an average of 500 million cubic meters of water drain into the lake every year, in the course of two stages, which correspond with the seasons (dry and rainy).

Additionally, and as a result of the accelerated erosion caused by deforestation, a volume of material which cannot be quantified but is considerable is carried into the lake and is causing a sedimentary accumulation of debris and the development of mud.

In the dry season, the main influx comes from the discharge of sewage and industrial waste, while in the rainy season, there is a combination of the above and rainfall.

The basin of the lake, that is to say the geographic area delimited by the relief of the terrain into which the water drains through a common channel, covers 396 square kilometers.

The municipalities located within the lake basin are San Juan Sacatepequez, Mixco, Guatemala, Santa Catarina Pinula, Villa Canales, Fraijanes, Amatitlan, Villa Nueva, Petapa, Santiago and San Lucas Sacatepequez, Santa Lucia, and Magdalena Milpas Altas.

There are, in addition, 125 population centers, 72 industries with the potential for chemical waste contamination, 28 rivers, four deep ditches and 15 ravines. Forty-seven sewage and industrial waste outlets have been identified, of which the municipality of Guatemala is responsible for 26, Mixco for 11, Villa Nueva for seven, Villa Canales, for one, San Miguel Petapa for one, and one is within the boundaries of Villa Nueva and Guatemala.

Some of the factors which have contributed to the progressive deterioration of Amatitlan Lake are obstruction; the uncontrolled cultural deoxidization of the lower lake level; the use of pesticides, manure, and fertilizers containing urea and phosphates in improper farm practices; the lack of sewage treatment plants; erosion and deforestation; and the dumping of solid wastes, chemical products, sewage, and garbage into the rivers of the basin which empty into the lake.

Deoxidization is a natural process which can be managed within the framework of environmental balance in confined bodies of water, thus ensuring that the ecosystem will be naturally and artificially self-regulating. However, when the boundaries of an eminently oligotrophic body of water like Amatitlan Lake are overrun, and uncontrolled cultural deoxidizing begins as a result of the introduction of excessive nutrients and untreated sewage, together with the deforestation of the basin, the process of recovery slows down and drastic changes in the ecological balance can occur.

"Deoxidization means the death of the lake, as a result of the influx of sewage which has not been treated, agrochemical products such as fertilizers and insect killers, garbage, and solid waste carried into the lake by the Villalobos River from the part of the basin south of the capital city," Mario Hernandez, president of the Environment Commission of the National Reconciliation Commission (CNR), explained.

On the other hand, "The accelerated erosion and the movement of soil and sand resulting from the construction of factories, roads, and housing projects leads to the obstruction of the lake, thus gradually reducing its water volume."

"When a road or a subdivision is built, or when trees are cut down, earth and sand wash away and reach the lake, causing it to become ever smaller and more shallow," Guillermo Mata Amado, president of the Amatitlan Lake Committee, emphasized.

"Since the basin of the Villalobos River is entirely damaged and the channel has no protection, tons of earth and sand are reaching the lake to fill it up and plug it," Mario Hernandez said.

"Naturally, this will have serious consequences for the national economy, since the lake is used as a reservoir by the INDE [National Institute of Electrification] for the generation of 12 percent of all of the country's energy at the Laguna Thermoelectric Power Plant and the Jurun Marinala Plant."

"But to this must be added indiscriminate deforestation, overpopulation, the lack of services in the municipalities in the basin, as is the case in Villa Nueva, which has no drainage, ditch, or sewage systems, nor any services for the removal of its waste water."

In fact, the president of the Lake Committee explained that "the sewage and waste water from the municipalities of Mixco, Villa Nueva, Villa Canales, San Miguel Petapa, and Pinula, as well as such settlements as El Mezquital, Villalobos I and II, and Esperanza, will end up in Amatitlan Lake."

Currently 75 percent of all of the domestic and industrial sewage from the capital city and its satellite municipalities ends up in Amatitlan Lake.

A study carried out by the Lake Committee identified six formal sewage treatment plants in the municipality of Mixco, five in Guatemala, one in Villa Canales, and four in Villa Nueva.

"Unfortunately, despite the fact that the law places all urban development planned and approved by the municipalities under the obligation to build water-treatment systems, a considerable number of subdivisions and almost 380 industries located in the Villalobos River basin have no treatment plants, or if they do, they are failing to maintain them properly and to operate them efficiently and continuously."

Although an accelerated and progressive process of deterioration is continuing in Amatitlan Lake, deemed in some respects to be irreversible, its recovery and rehabilitation will depend on the protective measures implemented and the management of the conditions which are currently affecting it.

PERU

Details, Impact of Environmental Code Discussed

91WN0015A Lima EXPRESO in Spanish 16 Sep 90
p 7

[Interview with Jorge Caillaux, president of the Peruvian Association of Environmental Law and Senator Beatriz Merino, president of the Ecology Committee by correspondent Ana Maria Mejia, first two paragraphs are EXPRESO introduction; date and place not given]

[Text] After being held up for nearly five years in Congress, the Environmental Code has finally been passed. Despite the challenges to which it was subjected, President Alberto Fujimori effected its promulgation by virtue of Legislative Order No 611.

We are reprinting two interviews on the subject: the first with Jorge Caillaux and the second with Senator Beatriz Merino.

[Mejia] Why did approval of the Environmental Code take so long?

[Caillaux] Indifference. In Peru, making environmental policy is not important because, in the minds of traditional politicians, it bears no immediate fruits. Politicians are finally beginning to discover that by making environmental policy, they will come closer and closer to

the people's needs. It was not delayed by basic objections, which obviously exist. We were able to overcome those.

[Mejia] What is the importance of the Environmental Code in our country?

[Caillaux] It is important because it regulates a whole area of the Peruvian legal system in order to give it a more proper orientation and organize a series of criteria by establishing principles. Consequently, not only the government, but private individuals as well may, adapt their activity in terms of the environment. That is a virtue of the Code.

It establishes the right of all Peruvians to live in a healthy and ecologically balanced environment and gives citizens access to the courts to defend that right. However, the Code does not merely seek to punish, but also to encourage a movement of reflection in order to ensure that those who make decisions on law will promote the concept of producing, while conserving natural resources to the full extent of our possibilities.

[Mejia] What does the Code say about ecological crimes?

[Caillaux] The Environmental Code provides for sanctions for those who fail to meet environmental standards. Ecological crimes are committed when an individual or corporation manifestly violates administrative standards and ignores the provisions of environmental authorities. In that case, that party would be acting intentionally against the environment and action may be brought.

[Mejia] What persons or entities make up the environmental authority?

[Caillaux] The Code has established a National Environmental System to be based on government institutions that already exist and work in different areas and constitute a specific office within the Office of the Comptroller General of the Republic, making it possible to constantly supervise the work of officials responsible for applying environmental standards.

[Mejia] Do you think the Code forms a basis for the creation of a coherent environmental policy?

[Caillaux] I think the Code will force the government and private parties to organize themselves better and design a coherent policy of ecodevelopment (economic development in terms of the environment). In that sense, it will, over the next five years, encourage the government to design a program of environmental action and foster the political determination to act in terms of the environment.

[Mejia] And yet, only a few months ago, you maintained that a code was not a way to solve the lack of integration of environmental laws.

[Caillaux] What has happened is that over the past two months, the draft Code that already existed was revised

and improved. What the Code now contains are general principles which, when applied, will in some way guide a more reasonable environmental policy. However, a code is not the solution to problems of an environmental nature.

[Mejia] What is the solution?

[Caillaux] The solution is that both those in government and all others must become aware that protecting the environment represents an investment that will yield profits and improve the quality of life for the people and even our bargaining position vis-a-vis our foreign creditors.

[Mejia] In what areas has the Code been improved?

[Caillaux] It was more regulation-oriented and repeated many matters already contained in other legislation such as the forest and fauna law and the Health Code. What has been done is to redefine concepts by introducing others such as that of the natural patrimony and a reorganization of the designation of protected areas vital to proper resource management.

[Mejia] Which aspects of the Code are of greatest importance to public opinion?

[Caillaux] There are many. The law on bases of rural development for the Amazon region has been rescinded. That law was criticized and never had a new strategy of development for the Amazon region stipulating that its resources be exploited for the benefit of local peoples. The Code seeks an anthropocentric environmental administration which considers natural resources as a value benefiting man. In addition, Article 142 of the Code strengthens the current series of agreements aimed at converting the foreign public debt into donations. In other words, paying the foreign debt by conservation projects gives it the status of law and facilitates bureaucratic procedures.

[Mejia] Given the fact that the Code was drafted in 1984, how was the aspect of regionalization considered?

[Caillaux] Regionalization has always been present in the Code. Regional governments are given powers to legislate and engage in environmental administration based on Environmental Code policy.

For example, three categories of natural protected areas have been set up: local, regional, and national.

[Mejia] How will the people's participation be channeled?

[Caillaux] The people not only have the right to take legal action, but also participate in the designing of an environmental policy through local and regional governments. In addition, they have the right to be informed of measures that may affect their health. For example, if a company has facilities in Tarma very close to the Plaza de Armas, settlers have the right to demand that the

company draft an environmental impact report if the authorities have not requested this.

[Mejia] What role will be played by the Peruvian Environmental Law Association in order to contribute to the application of the Code?

[Caillaux] We are an entity that investigates and proposes environmental standards. We provide support for all those who require advice in the application of Peruvian Environmental Law, whether peasant communities, companies, or private parties.

Beatriz Merino

Senator Beatriz Merino, president of the Senate Ecology Committee, emphasized, among other things, the task of inspection befalling the Committee.

[Mejia] What is the Senate Ecology Committee now working on?

[Merino] We are establishing our priorities. I have personally had a meeting with members of the Peruvian Environmental Law Association in order to talk about the new Environmental Code and examine benefits resulting from that legal instrument along with different aspects that have been challenged in various media and that will be clarified by the Senate Committee.

[Mejia] Which priority projects will be reviewed?

[Merino] Next week we shall determine the list of priorities, basically in protected areas in the native communities, reports of deforestation in our country, the use of natural resources, and pollution caused by many private and government entities without any sort of sanction or restriction. The latter will receive priority because it is extremely dangerous and hurts the quality of life of all Peruvians.

[Mejia] How will you guarantee application of the Code?

[Merino] First of all, through its dissemination. We must contact the minister of education so that some of the fundamental concepts of the Code are incorporated into education in the schools. I have thought of a campaign for nine year-olds for the dissemination of basic environmental concepts. The Executive Branch must regulate the Code over the next 60 days.

[Mejia] How will the Committee's work be guided?

[Merino] Our work will consist of inspections so as to report all government and private companies or individuals that violate the Code. However, one must emphasize positive aspects of the Code rather than its sanctions. The Committee will work on revisions and legislative measures serving to protect the environment and will investigate an issue little known to public opinion: deforestation and the mistreatment of native communities.

**Vorontsov Calls for Ecological Coordination,
Scores Novaya Zemlya Testing**

91P50048A Moscow MOSCOW NEWS in English
No 44, 11-18 Nov 90 p 3

[Article by USSR State Environmental Protection Committee Chairman Nikolay Vorontsov: "Who Needs Freedom When You Can't Breathe the Air?"]

[Text] The country is being rent by centrifugal forces. The euphoria of "sovereignty" and the elan of secession have gripped republics and districts alike. Yet nature knows nothing about this. It is single and indivisible. To forget this simple truth is to invite ecological disaster. Then there will be no air to breathe.

Today, with the rapid growth of many cities where people inhale the entire periodic table, with the increasing number of ecologically distressed areas, we seem not to realize that in developed countries, environmental protection is part of the national security system. We continue to revel in nonstop administrative-territorial fragmentation with the proclamation of sovereign rights to the mineral wealth and water. This has already led to dangerous confusion. If one mountain republic cuts down the forests meant for protection, another is overwhelmed with mudflow. If the sources of rivers have been poisoned in one republic, this inevitably affects neighbouring republics. Take the Ural River flowing through the territory of the Russian Federation and Kazakhstan. Industrial waste, containing 26,000 times the permissible norms of six-valent chromium, is discharged into its estuary in the area of Aktyubinsk. This monstrous pollution flows into the RSFSR, and from there back into Kazakhstan. To whom will this sewage belong?

How is it possible to split up the single ecological system of the Caspian Sea into the economic zones of Russia, Kazakhstan, Turkmenia, and Azerbaijan? The Caspian contains up to 90 percent of the world's reserve of sturgeon fish, and all those republics have a right to that sturgeon. The whole union has invested money in the fish factories raising young fish. Now suppose that each sovereign republic starts demanding its own share? But the specifics of sturgeon are such that if they are fished from the sea, not from the rivers, they will simply become extinct.

Strict legislation is in order. But not a single republic will be able to resolve a single ecological problem if it is to be hemmed in by itself like a snail. Nature calls for a biospheric, rather than administrative-territorial, approach. Today one hears more and more talk about the establishment of a world ecological government, whereas we have been making steps in the opposite direction in the USSR. Sometimes it is believed that it is possible to do with agreements between the republics, but how many of them must have been signed? According to my estimates, over 200—to encompass the entire range of dramatic problems. This is either unfeasible or will degenerate into bureaucratic red tape.

I am not at all in favour of a unitarian state. But here we must discard the usual stereotypes and ask ourselves: what does chaos in the ecological sphere mean?

But here is a process in the opposite direction—the unitarian state, or rather its military-industrial complex, has again decided to play with its missiles. On October 24, nuclear tests were carried out in Novaya Zemlya. The military had been obliged to leave Semipalatinsk, so it took its testing ground in the Arctic out of mothballs, not paying the slightest attention to protests from specialists. But Arctic nature is supervulnerable. Our militarists have doomed it to ruin well in advance.

Before the October 24 blast, the Defence Ministry did not so much as to notify the environmentalists. Thus, all our talk about a single ecological control falls on the deaf ears of the government department which has decided that national security is its sole monopoly.

Besides, now that the Northern [i.e. Nordic] countries are prepared to grant us interest-free credits to the tune of billions of dollars, we can destroy both their trust in us and their desire to help us.

The Board of the USSR State Committee for Nature Conservation [i.e. for Environmental Protection] has protested. But previous experience suggests that our protests carry little weight in Frunze Street at the Defence Ministry.

There is no denying that everyone has a right to freedom. But freedom means responsibility. In this case—responsibility to the future.

**Official Urges Changes in National, Local
Environmental Protection Structure**

91WN0030A Moscow PRAVITELSTVENNYY
VESTNIK in Russian No 38, Sep 90 pp 10-11

[Article under the rubric of "Problems of Ecology" by A. Tsygankov, deputy chairman of the State Committee for Emergency Situations of the USSR Council of Ministers: "Nature Is Still Hoping"; first paragraph is source introduction]

[Text] The union republics are acquiring sovereignty and full economic independence. All natural resources are being transferred to republic ownership, and their transfer to Union jurisdiction is possible only under lease conditions, as for example, in the RSFSR. How should the rights and the responsibility for environmental protection matters now be divided between the center and the local organs of power? The question is extremely important: the future of many generations depends on whether we are able to find the correct answer to it.

The current system was established a total of two years ago. Its structure presumed a network of unified environmental protection organs, which monitor at the local level all the parts of the biosphere—bodies of water, the air and land resources. However, agencies concerned

with fishing and land, as well as other organs, have been reluctant to hand over their functions and staffs to the environmental protection system. The Kostroma authorities proposed the establishment of a fully unified service, but the Union Minrybkhov (Ministry of the Fish Industry) and Goskomles (State Committee for Forestry) objected. That same fate befell an initiative by the Kamchatka authorities. One would hope that all this was in the past; based on the laws which have been adopted, the Union republics can now use their own authority to establish unified environmental protection organs. Will they want to? Or will departmental ambitions once again prove stronger?

And now with regard to the mutual relations of the republics and the center. They will hardly develop constructively if the deputy corps and executive organs do not recognize that nature is one and does not take administrative boundaries into consideration. Life shows that, alas, not everyone understands this. Here are just two examples. Kaspvodnadzor, the unified organ established to monitor the state of the Caspian Sea, has been eliminated. The result will hardly be positive. Goskompriroda (USSR State Environmental Protection Committee) discussed the idea of a single monitoring service for the Baltic Sea, but this was rejected by the Baltic republics. Maybe this is to be expected; maybe this a natural process by which central organs which no one needs have begun to wither away?

I have had occasion to participate in all of the more or less serious organizational changes in the environmental protection organs during the last decade, and I am convinced that the center must and can play a worthy role in the new system. Above all, it retains the state ecological expertise in systems for developing and siting productive forces, especially major facilities of economic importance; after all, in this process one needs to take into account negative consequences for countries other than our own.

It is essential to create a nationwide system to collect, process and analyze data on the state of the environment and the use of natural resources. This information is necessary when providing information to the public and when preparing annual reports for international organizations. If we do in fact support the concept of stable development put forward by the International Commission on the Environment and Development, then we must coordinate the ecological consequences of every republic's economy policy. At the same time, it is completely realistic to think of achieving a reasonable combination of decentralization, on the one hand, in the administration of resource-utilization with regard to resources which are vitally necessary for the local population, and, on the other hand, effective monitoring of strategic resources, which ensure the stable position in the the international community of the Union and of each republic as well.

Finally, it is necessary to understand that the health of our descendants depends on the species diversity of

plants and animals more than on the extra ton of steel or kilowatt of energy per capita. And this kind of diversity can be preserved if we can create specially protected territories and make the transition to more rational economic activity in all places, and not just in individual "principalities."

The republic is becoming the real master of territory and resources; this means that the role of its planning organs is increasing sharply. In my view, it is these organs which must determine the scheduled figures on the reduction of waste for every enterprise located within the territory of the republic. USSR Gosplan will allot the funds for environmental protection in those regions which, on the basis of Union legislative acts, will be recognized as ecological disaster zones.

The main burden of monitoring the state of nature and the fulfillment of environmental protection measures rests with the local environmental protection organs, which are directly linked to the soviets of people's deputies. They draw conclusions on the possibility of developing industrial production units. In the past the leaders of industrial enterprises kept the public ignorant of the negative ecological consequences of production, and today that public no longer believes the promises that modern equipment and technology make it possible to create safe sites for the neutralization of toxic wastes, for example. But in a situation of political demagoguery there are few who will agree to this choice of site. Under conditions of complete glasnost and objectivity the republic must get local organs to agree, of course, with a guarantee of comprehensive and constant monitoring. Otherwise, obstinacy will lead sooner or later to the death of both people and of nature.

It is the local organ which must become the main source of information on the state of the natural environment, on emergency ecological situations and the measures which must be taken. Unfortunately, people now prefer to "go to the top" immediately even on those questions which can be resolved only at the local level. This is evidence of the soviets' incomplete utilization of their executive potential.

Of course, it is necessary to provide information not only to the public but also to the environmental protection structures at all levels. A steady flow of data on the content of pollution in the water, air, soil and foodstuffs is essential. At present a great deal of information comes from subdivisions of USSR Goskomgidromet (State Committee for Hydrometeorology), which has an extensive network for the collection and analysis of information throughout the country. However, a proposal has already been made in the RSFSR to transform USSR Goskomgidromet into a republic-level organ. When resolving the question of its status, it would be no sin to think not only about political motives but also about scientific realities. Weather and climate are not formed according to directions from "all-knowing" authorities; they depend on global and cosmic processes.

In September of this year the USSR Academy of Sciences, along with USSR Minzdrav (Ministry of Health), USSR Goskompriroda and other ministries and agencies, will introduce into the USSR Council of Ministers proposals concerning the establishment of an All-Union Chemical-Analytical Center for Operational Ecological Monitoring. It will include scientific-research institutes which will have the most skilled personnel and newest equipment, their branches in various regions, as well as systems for selecting samples for analysis and for delivering them. Lessons from the events in Gorlovka, Dvinskaya Guba and other places have shown that when an effective analysis is needed, a great deal of time is spent on coordination.

It is clear that the mutual relations between the republics and the Union environmental protection committees need rethinking, and their structure needs changing. For example, during discussions in the USSR Supreme Soviet Committee on Ecology and the Rational Use of Natural Resources a proposal was made to make the Main State Ecological Impact Assessment Office [Glavnaya gosudarstvennaya ekologicheskaya ekspertiza] into an independent organization and to transfer to it the staff and appropriations from the impact assessment offices of those ministries and agencies which are being closed down. Given that the ecological consequences of mistaken economic decisions are extremely serious, the work of an independent State Ecological Impact Assessment Office could have a noticeable impact even in the immediate future. At the same time, the Union organ would not play a command role—it could become a methodology and coordinating center, and if necessary, it would act as an arbiter.

In short, there has emerged a real prospect for radical improvement in the organization of the environmental protection system. It would seem that it is time for the leaders of the republic-level committees and the union ecological organs to sit down together and talk.

Soviet Environment Officials Support Nordic Novaya Zemlya Protest

LD2910190690 Stockholm Domestic Service in Swedish 1700 GMT 29 Oct 90

[Text] At a meeting of environment ministers in Helsinki, the Nordic countries got unexpected support for their protests against the nuclear tests on the Novaya Zemlya Archipelago in the Arctic Sea. The support came from Soviet Environment Minister [title as received; Vorontsov is chairman of the USSR State Environmental Protection Committee] Nikolay Vorontsov, who said that the Nordic people are quite right to protest.

[Gustafsson, correspondent] Continue to put pressure on the Soviet Government [sentence as received]. The only way to end these tests is for neutral states to protest, continued Soviet Environment Minister Vorontsov. He himself had no idea beforehand that the test explosions would take place, he said, and when he learned of it, he

sent in a protest to his own government, a protest that, one can see, will not mean an end to the nuclear tests.

Minister Vorontsov also pointed out that it was quite necessary to protest to other nuclear powers as well over their tests. Otherwise credibility will be lost, he believes. Once he had described his lack of influence in the government, the environment minister of the Russian Soviet Republic, Gavrilov [possibly I.T. Gavrilov], spoke. He was, if possible, even more upset. Novaya Zemlya is within the borders of Russia, and, he pointed out, they had not been consulted at all about this matter before the test took place, which meant that the Russian parliament, too, protested against the test.

The Estonian environment minister thereupon stated that 20 meters from the town of Sillamae on the north coast of Estonia there is an 800-cubic-meter mountain of waste containing radioactive substances. He believes for his part that this ought to exercise the Nordic environment ministers much more, because it is directly polluting the Baltic. Nuclear tests up on Novaya Zemlya are nowhere near as dangerous, he claimed. Kristina Gustafsson, Helsinki.

Norway Leaders Protest Novaya Zemlya Nuclear Test

PM3010132590 Oslo ARBEIDERBLADET in Norwegian 25 Oct 90 p 10

[NORSK TELEGRAMBYRA report: "Slap in the Face"]

[Text] The Soviet Union's nuclear test on Novaya Zemlya came as a slap in the face for the Norwegian authorities. Only a few hours before the nuclear test took place at 1600 hours Norwegian time Wednesday afternoon [24 October] Prime Minister Jan P. Syse had called on the Soviet authorities to refrain from such testing.

"We are very disappointed at the nuclear test. The Soviet Union has not heeded the many protests," Prime Minister Syse told NORSK TELEGRAMBYRA.

It was the Seismological Department at Uppsala University in Sweden which reported the nuclear test detonation. The explosion registered 5.7 on the Richter scale. The explosive effect was between 20 and 150 kilotons. The last nuclear test on Novaya Zemlya was carried out 4 December 1988. That reached 6.1 on the Richter scale.

According to TASS, the test was carried out to test the reliability and to increase the safety of the use of nuclear arms. TASS reported that radioactivity in the test area is normal.

"I thought the Soviet Union would have behaved differently. The test took place close to Norway in an ecologically very sensitive region," Syse said.

When the Norwegian authorities became aware that an exclusion zone had been introduced on the eastern side

of Novaya Zemlya and that other measures in preparation for the test had been carried out by the Soviet Union, Prime Minister Syse contacted USSR Prime Minister Nikolay Ryzhkov.

Yesterday Syse received a reply to the effect that a test would take place over the next few days. A few hours later the detonation took place.

"Norway strongly dissociates itself from what a neighboring state has now done. Without wishing to dramatize the situation, what has happened is a negative factor in relations between the Soviet Union and Norway. We have made use of all channels in our attempts to have the test halted. As recently as yesterday the other Nordic countries were asked to protest the Soviet Union's plans," Prime Minister Syse said.

"The Soviet nuclear test has spread negative reactions and given rise to fears—particularly in northern Norway. It is very regrettable that this has happened," Foreign Affairs Committee Chairman Gro Harlem Brundtland (Labor Party) commented to NORSK TELEGRAMBYRA.

Like the prime minister, she stressed that Norway had done everything that could be done to persuade the Soviet Union to refrain from carrying out the nuclear test.

"But it is possible that the decision for the nuclear test had been taken and the physical and technical preparations made more than a year ago. This would make it difficult to back off," Brundtland said.

She also said that the juxtaposition of Mikhail Gorbachev's peace prize and the nuclear test is regrettable. But she added that the prize was awarded on the general basis of the work Gorbachev has done to create changes in Europe.

Brundtland deems it regrettable that the nuclear powers have not reached agreement on a nuclear test ban. She pointed out that the United States, Britain, France, and China also carry out such tests.

Soviet local politicians from Arkhangelsk, in whose administrative district Novaya Zemlya is situated, were completely in the dark about the nuclear test while staying yesterday evening at Sorreisa Hotel in Tromsø. The protests at the nuclear test are as strong in the Soviet Union in areas close to the test site as they are in northern Norway.

"This came as a complete surprise. The local authorities have not heard a word about a planned test at the present time," oblast soviet chairman Pavel Balatskin told NORSK TELEGRAMBYRA in Arkhangelsk.

Supreme Soviet Resolution on Novaya Zemlya Nuclear Tests

LD3110113290 Moscow TASS International Service
in Russian 1010 GMT 31 Oct 90

[Report from the Kremlin by TASS correspondents Ivan Ivanov, Vladimir Bachenkov, and Andrey Orlov]

[Text] Moscow, 31 Oct (TASS)—The Soviet parliament adopted a resolution today "On the situation which has come about in connection with the staging of an underground nuclear explosion on Novaya Zemlya on 24 October 1990." This results from the hearings which took place on Monday.

It states, in particular, that the relevant authorities—the USSR Supreme Soviet committees on defense and state security matters and on ecology and the rational utilization of natural resources, and the USSR State Committee for Protection of the Environment—were not informed in good time about this nuclear test. "The nuclear explosion which was carried out has also hampered the development of cooperation between the USSR and the countries of northern Europe in the field of joint steps to improve the ecological situation in the north", the document says.

The resolution indicates to the government the impermissibility in future of failing to notify the authorities in good time of the preparation and staging of nuclear tests. The USSR Council of Ministers is also instructed within a two-month period to complete the elaboration and to submit to the parliamentary committees on defense and state security matters and on ecology proposals on a nuclear test program for 1991, and also on a comprehensive program of nuclear tests.

The Supreme Soviet requested the government to speed up the preparation of a report on matters relating to the influence of subterranean nuclear tests in the Novaya Zemlya archipelago on the surrounding regions of the extreme north, and also to analyze the consequences of previous nuclear tests on the health of the population in the adjoining regions.

The prohibition of all forms of nuclear tests is one of the more important areas both of the domestic and foreign policy of the Soviet Union. Soviet initiatives in this sphere, however, are not meeting with support from the United States, the resolution stresses.

RSFSR Supreme Soviet Statement on Novaya Zemlya Test

LD0111110490 Moscow TASS International Service
in Russian 1010 GMT 1 Nov 90

[Report by TASS parliamentary correspondent Lev Aksenov]

[Text] Moscow, 1 Nov (TASS)—"The underground nuclear explosion of 24 October in the Novaya Zemlya islands was carried out in violation of the declaration of

state sovereignty of the Russian Federation." This is said in a statement from the Supreme Soviet Presidium and the Russian Federation Council of Ministers circulated here today. It was signed by Ruslan Khasbulatov, first deputy chairman of the Russian Supreme Soviet Presidium, and Ivan Silayev, chairman of the republic's Council of Ministers.

The latest test of nuclear weapons was not agreed with the Russian Soviet Federated Socialist Republic [RSFSR] Supreme Soviet and Council of Ministers or with local authorities, the document stresses.

"The Supreme Soviet and the RSFSR government consider this situation intolerable, protest resolutely, and demand that in the future the RSFSR state sovereignty declaration be complied with unconditionally in all its aspects," the document says.

The parliament's presidium and the republic's government suggest that the USSR president and USSR Supreme Soviet "define without delay the conditions and procedures for cooperation in the preparation, implementation, and checking of the execution of a decision in the sphere of the country's defense and security."

Arctic Citizens Protest Novaya Zemlya Nuclear Test

*LD1111042190 Moscow Domestic Service in Russian
2200 GMT 10 Nov 90*

[Text] A recent test of a nuclear device on Novaya Zemlya caused an angry protest of the inhabitants of an Arctic Village port of Dikson. Local weathermen were the first in the country to learn about this test. They noted anomalous warm changes in the upper atmosphere over the island while analyzing space photographs.

An appeal was sent to the country's president. It was noted in it that the Arctic, being a high cyclone activity zone, is completely unsuitable for such tests. A predominant bearing of apparent winds from the Atlantic can subject the northern part of Taymyr and its coastal area to radioactive pollution.

The inhabitants of Diksonskiy Rayon insist that an ecological commission be set up for an independent examination of the testing ground on Novaya Zemlya.

Finnish, Soviet Officials Discuss Nuclear Environmental Concerns

*LD0111040490 Helsinki Domestic Service in Finnish
1600 GMT 31 Oct 90*

[Text] [Announcer] In the discussions between the Soviet and Finnish environment ministers, it has emerged that the Soviet Union and the United States are developing a new nuclear weapon. In the talks Environment Minister Kaj Baerlund also asked the Soviet Union for an account of a gigantic nuclear waste depository being planned for Sosnovyy Bor near Leningrad. In that

area there are already four nuclear power stations and an old nuclear waste depository. Jaana Kanninen continues:

[Kanninen] According to Leningrad scientists, among others, very worrying reports have spread to Finland about the substandard condition of both power stations and the nuclear waste depository. At the power stations there have been several serious faults in operation, about which no information has been given. Nataliya Godzova, a researcher at Leningrad University, who spoke in Lappeenranta last weekend, said a new gigantic nuclear waste depository is being planned in the same area. Its size would be five times that of the old one, and it would swallow up all nuclear waste developed in the north-western part of the Soviet Union.

Environment Minister Kaj Baerlund had a private discussion lasting over two hours this morning with Nikolay Vorontsov, chairman of the USSR State Environmental Protection Committee, who is about to end his visit to Finland, about the nuclear waste depository, among other things.

[Begin recording] [Baerlund] The Soviet minister was not able to confirm or deny this report, but we agreed that the Soviet side will acquire the appropriate information and sent it to Finland as soon as possible. I myself stressed that although this new depository would be of a better standard than the old one, such a big increase in the storage of nuclear waste so near the Finnish border is a matter of great interest to the Finnish authorities, and I am convinced that discussions on this matter will continue.

[Kanninen] The Soviet Union has already earlier agreed to the Finnish authorities being allowed to make safety checks at nuclear power stations. Now the nuclear waste depositories are to be included, too.

[Baerlund] This will be proposed officially to the Soviet Union in the next few weeks when we will probably also be able to discuss the inclusion of nuclear waste storage matters in this inspection operation, if it is found necessary, and obviously it will be necessary as regards Leningrad.

[Kanninen] At this morning's negotiations Baerlund also took up the nuclear tests in Novaya Zemlya which are causing concern among the Finns. Minister Vorontsov promised that the Soviet parliament will alter the decision-making system with regard to nuclear tests. Charges could no longer be exploded without the knowledge of the environmental authorities and the highest decision makers, as happened last time. This was comforting news for the Finns, but, on the other hand, the Novaya Zemlya tests come into an entirely new light if the information that Baerlund has received from his Soviet colleague is true, that both the United States and the Soviet Union are developing an entirely new nuclear weapon.

[Baerlund] Such information has been given quite unambiguously, and in my view, with regard to the situation

we have internationally in which disarmament is being stressed, this is a very regrettable and worrying matter if it is true. Now (?we would hope) that this matter will be investigated very unambiguously within the United Nations, for instance. [end recording]

Chemist Voices Concern on CW Incineration

PM0711094590 Moscow IZVESTIYA in Russian
3 Nov 90 Union Edition p 6

[Letter from Dr. of Chemical Sciences S. Yufit under the rubric "From the International Departments' Mailbag:" "Will Chemical War Begin in the Soviet Union?"]

[Text] In a certain sense this war is already under way. Every year thousands of tonnes of poisonous substances are discharged into the atmosphere, the land and the water are poisoned by chlororganic pesticides, defoliants, and herbicides, and effluent containing heavy metals completes the picture. And now, in the near future, a new spiral, a new stage of this war could await us. As frequently happens, it could arise from a perfectly noble aim—the need to begin destroying chemical weapons.

Now that Iraq is threatening to use these weapons, it is not out of place to recall that they make no distinction between people and animals, adults or children—they kill them all. And you do not need a computer to calculate for yourself how much V-gas, for example, is needed to kill 1,000 people: A lethal dose for one person is 0.008 of a gram (the tiniest drop!), and death comes in a few seconds. In a certain sense chemical weapons are even more terrible and vile than nuclear weapons.

And now, under the agreement on the destruction and nonproduction of chemical weapons signed by the Soviet and U.S. presidents, the elimination of lethal substances is to begin no later than 31 December 1992. And we have more than 40,000 tonnes of these weapons! Now I will proceed to the reasons that prompted me to turn to your newspaper.

First, all must know that the question of the destruction of chemical weapons concerns everyone. M.S. Gorbachev's speech in the USSR 21 June 1990 stated bluntly that the destruction of chemical weapons is "proving not easier but more complex than their production." But he did not say that it could cost billions of rubles to destroy these weapons. For example, the corresponding plant on Johnston Island cost, according to some estimates, \$1-2 billion.

The present state of the problem. The United States has conducted experiments on Johnston Island to destroy missile heads containing toxins. They incinerated 15 heads, and there were three discharges of neuromuscular poisons (see IZVESTIYA No. 244 for 1 September 1990). Johnston Island is an uninhabited atoll 800 miles from the Hawaiian Islands in the Pacific. But we have constructed such an enterprise in a densely populated area not far from Kuybyshev and the Volga! Fortunately, we

have not managed to commission it—there was public opposition. There are no other plants in the Union. Consequently, in two years it is necessary to create an entire new sector of industry—plants and installations to destroy chemical weapons. Which path are we to choose for this?

Precisely this question faces the USSR Supreme Soviet. Parliamentary hearings have now begun on this problem. Almost 10 projects have been submitted to parliament. They all fall into two groups: One is based on the U.S. method, i.e. incineration. The other proposes using a method developed by our specialists: first rendering chemically safe, then destroying. This would use the methods and materials that are employed according to Army instructions for degassing toxins if used under combat conditions (God forbid!).

I urge journalists and readers not to let us take the U.S. path: It is terrible to imagine what even a single discharge of neuromuscular gas would mean under our conditions—not on a desert island but in a densely populated oblast. And it is awful to even think what would happen if there were an accident while transporting toxins. And such accidents are—alas!—frequent.

Many public organizations in the United States, including such a one as Greenpeace, which is known for its uncompromisingness, are opposed to the U.S. method of incinerating chemical weapons because it is fraught not only with possible discharges but also with the formation of dioxins. Dioxin is such a poison that it is hard to imagine anything worse. It is dioxin which is still maiming Vietnamese children, and yet how many years have now passed since the Americans used the "orange" defoliant containing this substance in Vietnam!

And now there is talk (see IZVESTIYA 26 August 1990) of possibly buying U.S. technology (the logic is this—at least they have something, while we have nothing) or of creating our own plants to incinerate chemical weapons using the same method. And emissaries from U.S. firms are already offering their services in the construction of such installations. In my opinion, such construction would be not only an ecological disaster but also a financial one.

I am speaking not only for myself but also on behalf of a "green" organization—the Social-Ecological Union, which invited me to be their expert on this problem. At the same time I wish to support our Army chemists: I am convinced that it is not we who must buy installations for the destruction of chemical weapons from the Americans, but they from us. Our chemists have created safer projects. They are ecologically cleaner and substantially cheaper. And if we are to speak of cooperation between our countries on this problem, it must be built on the basis of Soviet projects.

The public's demands are clear and specific:

- no giant plants for the destruction of chemical weapons;
- no transporting them around the country;
- toxins to be destroyed where they are stored;
- no projects to be adopted without independent expert appraisals;
- all stages of the work on the projects and the construction of installations must be monitored by the press and public organizations.

Luckily for us, we have very little of the toxin that is the "worst" to destroy—mustard gas (the very same that was used back in World War I), and it will be easy to cope with it. At the same time, for reasons known only to the military, they have brought all the lewisite—a substance containing arsenic—together in one place, and approximately 7,000 tonnes (!) of it lie near the population center of Kombarka, on the Kama. It could be thought that a new arsenic deposit had appeared on the geological map of the Soviet Union! We propose (and Army chemists have proven methods) to begin... exploiting that deposit. And, with the help of the Americans—they will do this both faster and better—to construct a plant to obtain arsenic and very valuable and costly preparations manufactured on the basis of it. To share the proceeds fifty-fifty. Such a plant would be a good platform and a good model for cooperation between our countries in resolving the problem of destroying chemical weapons.

UN Delegates Sponsor Chernobyl Resolution

LD0211071690 Moscow TASS in English 0628 GMT
2 Nov 90

[By TASS correspondent Nikolay Maslov]

[Text] United Nations November 2 TASS—Belorussian and Ukrainian Foreign Ministers Pyotr Kravchenko and Anatoliy Zlenko, the leaders of the respective delegations at the 45th session of the United Nations General Assembly, as well as the permanent representatives of the Soviet Union, the Ukraine and Belorussia called on UN Secretary-General Javier Perez de Cuellar on Thursday and exchanged views with him on the forthcoming discussion at the UN General Assembly of his report on the elimination of the aftermath of the breakdown at the Chernobyl Nuclear Power Station.

The representatives of the Soviet delegations expressed gratitude to the UN chief for his work to enlist the international community's efforts for the elimination of the aftermath of the Chernobyl disaster. They highly appreciated the work of the UN commission which visited the worst-affected areas of Belorussia, the Ukraine and Russia.

The Soviet delegates delivered a draft resolution to Perez de Cuellar on international cooperation to overcome and abate the consequences of the Chernobyl disaster.

Belorussia, the Ukraine and the USSR prepared the draft resolution in order to submit it for consideration at the 45th session of the UN General Assembly.

The document gives a high appraisal of the UN chief's report, invites UN member-nations to participate in international cooperation in Chernobyl clean-up operations and suggests that the matter be further considered at the 46th session of the UN General Assembly.

Perez de Cuellar welcomed the Soviet delegations' initiative. He said he supported the submitted draft resolution, hoping that it would be endorsed by the General Assembly on the basis of consensus.

Government Panel Views Progress on Chernobyl Cleanup

PM2910154990 Moscow PRAVDA in Russian 27 Oct 90
Second Edition p 2

[Unattributed report: "In the Government Commission on Eliminating the Consequences of the Accident at the Chernobyl AES"]

[Text] The commission examined progress in fulfilling the USSR Government targets stemming from the USSR Supreme Soviet resolution "On an Integrated Program To Eliminate the Consequences of the Accident at the Chernobyl AES [Nuclear Electric Power Station] and the Situation Resulting From That Accident."

It was noted that the necessary organizational measures have been taken and that union and republican committees to eliminate the consequences of the accident at the Chernobyl AES have been set up and entrusted with coordinating work to monitor the implementation of the state union republican program.

Work has been done to more fully supply the population with medicines. Thus an extra allocation of 87 types of medicines worth 775,000 rubles has been specifically made for the stricken rayons of Bryansk Oblast. Allocations of medical equipment and medicines in the Ukraine have been increased by 30 percent for rayons with an unfavorable radiation situation. An extra 2,700 physicians and general medical personnel have been assigned to Gomel and Mogilev Oblasts, and measures are being taken to provide them with well appointed housing. Additional resources are being used to supply the population with food on the basis of recommended consumption norms. Restorative treatment for the population of the stricken rayons, especially for children, is better organized than in previous years.

House-to-house radiation screening of 1,168 population centers numbering 104,300 structures within zones of radioactive contamination ranging between five and 40 curies per square kilometer has been carried out, which is about one-half of the volume of this work.

Work on the additional medical screening of participants in operations to eliminate the consequences of the accident is being carried out. Seventeen regional interdepartmental expert councils to establish the causal connection between sicknesses and invalidity and operations to eliminate the accident at the Chernobyl AES have been set up.

The aerial gamma spectroscopic survey of territory of the RSFSR [Russian Soviet Federated Socialist Republic], Ukrainian SSR [Soviet Socialist Republic], and Belorussian SSR has been largely completed and, after the results have been processed, a more detailed map of cesium-137 contamination of the ground will be compiled for practical use and for the population's information.

At the same time the government commission noted that the union republic councils of ministers and a number of USSR ministries and departments are failing to ensure the smooth commissioning of housing. Thus the USSR Ministry of Transport Construction and the USSR Defense Ministry failed to ensure the commissioning of 7,400 square meters of housing in Bryansk Oblast, and over the first nine months only 35 percent of the annual plan for the construction of housing for resettled families was commissioned in the RSFSR as a whole, 57 percent in the Ukraine, and 27 percent in Belorussia. The target of the 1990 program for the mandatory resettlement of the population from the zone with a contamination density of over 40 curies per square kilometer has been 13 percent fulfilled in the Ukrainian SSR, 68 percent fulfilled in the Belorussian SSR, and 72 percent fulfilled in the RSFSR. There must be a careful investigation of the state of affairs regarding these questions and the government commission must be told within 10 days of the measures that have been taken.

Among other tasks, the main ones for implementation in 1991 were deemed to be the following: completing the resettlement of residents from population centers on which such a decision has been made; further developing outpatient medical screening of children, young families, and other population groups; organizing restorative treatment for children during the summer period; creating additional capacities for the production of children's foodstuffs and increasing deliveries of them; completing the house-to-house radiation survey of population centers.

The session heard a briefing from Academician S.T. Belyayev, chairman of the USSR Academy of Sciences Presidium Coordination Council of Scientific Problems Connected With Eliminating the Consequences of the Chernobyl AES Accident, on progress in preparing, with the participation of foreign scientists and specialists, the concept and criteria for the safe residence of people on territories exposed to radioactive contamination, which are to be submitted in November of this year for examination in the USSR Council of Ministers.

The commission examined the special "Children of Chernobyl" program. Attention was drawn to the need for a more specific approach toward elaborating practical measures. In the light of the discussion the USSR Ministry of Health, with the participation of other ministries and departments and social organizations, was instructed to carry out additional work on this document and to submit it to the USSR Government.

People's deputies of the USSR and union republics and representatives of the public took part in the session. The session was chaired by V.Kh. Doguzhiyev, deputy chairman of the USSR Council of Ministers.

Republic Supreme Soviet Resolution on Chernobyl Cleanup in RSFSR

*PM0511140190 Moscow SOVETSKAYA ROSSIYA
in Russian 2 Nov 90 Second Edition p 2*

[RSFSR Supreme Soviet Resolution "On the State Program for Eliminating the Consequences of the Chernobyl Disaster on the Territory of the RSFSR in 1990-1995"]

[Text] The RSFSR [Russian Soviet Federated Socialist Republic] Supreme Soviet notes that the measures being taken by the RSFSR Council of Ministers and oblast, city, and rayon soviets to eliminate the consequences of the disaster are totally inadequate. As a result time has been irretrievably lost and the solution of many problems, particularly the removal of people from areas which are hazardous to their health (around 110,000 people in Bryansk Oblast alone), has been delayed unjustifiably. The construction of housing for evacuees is proceeding slowly. Inhabitants of the affected regions have not been fully supplied with clean foodstuffs, basic necessities, or medical and everyday services, and questions of improving the population's health are being resolved unsatisfactorily.

In regions affected by radioactive contamination an extremely tense sociopolitical situation has emerged because of the delay in the adoption of necessary measures and a loss of confidence in local and central organs of power among a section of the population.

The republic program for eliminating the consequences of the Chernobyl disaster and resettling the inhabitants of population centers on territory with a contamination density of over 15 curies per square km is being unjustifiably extended to 1995—this is the result of the erroneous concept in force since 1986 and the attempts to keep as many people as possible in the zone, for which purpose information on the true scale of the radioactive contamination and the extent of the danger to the population's lives was kept secret, everything was done to maintain a semblance of well-being, and people were unjustifiably encouraged to remain living in places from which they should have been immediately evacuated after the disaster.

Work is being carried out on contaminated farmland without taking full account of the situation and this

activity is not regulated by legislative acts, with the result that radiation-contaminated crop and livestock products are produced for consumption locally and for dispatch to other regions.

Scientific research and recommendations and information to the population on the radiation situation are inadequate.

In accordance with the Congress of RSFSR People's Deputies resolution "On Urgent Measures To Eliminate the Consequences of the Accident at the Chernobyl AES [Nuclear Electric Power Station] in a Number of Oblasts of the RSFSR," the RSFSR Supreme Soviet resolves:

1. To instruct the RSFSR Prosecutor's Office to examine the question of investigating officials and calling them to account for concealing or withholding information on the consequences of the accident at the Chernobyl AES in a number of oblasts of the RSFSR and for incorrect actions or inactivity in eliminating the consequences of the disaster in 1986-1990.

2. To instruct the RSFSR Council of Ministers in the light of remarks and proposals by people's deputies in October 1990 to rework and present for approval by the RSFSR Supreme Soviet the state program for the elimination of the consequences of the Chernobyl disaster, providing for the timelier (no later than 1991) mass [kompaktnyy] resettlement of people from territories where normal living conditions cannot be guaranteed because of radioactive contamination.

3. The RSFSR Council of Ministers, the Bryansk, Belgorod, Voronezh, Kaluga, Kursk, Lipetsk, Orenburg, Orel, Ryazan, Smolensk, Tula, and Chelyabinsk Oblast soviets and the Altay Kray soviet, and republic ministries and departments must ensure an immediate start to implementation of the program and seek out reserves for the fullest, immediate resolution of the tasks contained in it.

4. The RSFSR Supreme Soviet of the Republic Social Policy Commission, the RSFSR Supreme Soviet Committee for Questions of Ecology and the Rational Use of Natural Resources, the RSFSR Supreme Soviet Human Rights Committee, the RSFSR Supreme Soviet Health Care, Social Security, and Physical Culture Committee, and the RSFSR Supreme Soviet Committee for Women's Affairs, the Protection of the Family, Motherhood, and Children are instructed to elaborate and present for examination by an RSFSR Supreme Soviet session before the end of 1990 an RSFSR draft law "On the Rights of RSFSR Citizens Who Have Suffered as a Result of the Chernobyl Tragedy." The law must determine the legal status of the victims of the disaster and of the participants in the elimination of its consequences, the legal regime of the national environmental disaster zone, and the form of life and activity of the population in this zone. A republic program to be called "Children of Chernobyl" must be elaborated with the aim of sharply limiting and minimizing the effect of the adverse factors of the disaster on the rising generation.

5. The production of radiation-contaminated crop and livestock products is to be banned. The RSFSR Council of Ministers must study the possibility of using contaminated farmland for other national economic needs and convert economic activity on these territories.

6. The RSFSR Supreme Soviet Presidium and the relevant commissions of the chambers and the committees of the RSFSR Supreme Soviet must monitor the effectiveness and correctness of the use of the resources and materials channeled into eliminating the consequences of the disaster and aiding the population of the affected regions and also monitor the implementation of RSFSR Council of Ministers Resolution 318 of 22 August 1990 "On Additional Measures To Ensure the Fulfillment of the RSFSR State Program To Eliminate the Consequences of the Accident at the Chernobyl AES for 1990-1995."

7. The RSFSR Council of Ministers and the RSFSR Supreme Soviet Committee for International Affairs and Foreign Economic Ties must organize work with the relevant international organizations to help the Russian Federation eliminate the consequences of the accident at the Chernobyl AES.

8. The RSFSR Council of Ministers, the Bryansk, Belgorod, Voronezh, Kaluga, Kursk, Lipetsk, Orenburg, Orel, Ryazan, Smolensk, Tula, and Chelyabinsk Oblast soviets and the Altay Kray soviet must give labor collectives and the public regular information on progress in implementing the state program for eliminating the consequences of the Chernobyl disaster on the territory of the RSFSR, providing extensive information on radiation contamination and health and ecological data, to which end full use must be made of the potential of the press, radio, and television and all secrecy on these questions must be eliminated.

The RSFSR Council of Ministers must report annually to the RSFSR Supreme Soviet session on progress in implementing the state program.

9. Monitoring the fulfillment of this resolution is entrusted to the RSFSR Council of Ministers, the corresponding commissions of the chambers and committees of the RSFSR Supreme Soviet, and local soviets of people's deputies.

[Signed] R.I. Khasbulatov, first deputy chairman of the RSFSR Supreme Soviet.

RSFSR House of the Soviets, Moscow. 19 September 1990.

Belorussian Minister Proposes Creation of Nuclear-Free Zone

PM3010095190 Moscow IZVESTIYA in Russian
26 Oct 90 Union Edition p 5

[Report by A. Shalnev: "Belorussia Makes Proposals"]

[Excerpt] New York—Speaking on Tuesday at a UN General Assembly session, Belorussian SSR [Soviet

Socialist Republic] Foreign Minister Petr Kravchenko on behalf of his republic suggested creating a nuclear-free belt which would in the long term encompass Belorussia, the Ukraine, and the Baltic republics and to which "the Central European countries could accede if they so desired."

According to the minister, "we are clearly aware that the attainment of nuclear-free status for the Belorussian SSR affects the strategic interests of many sides and requires a responsible and balanced approach." As I understood from a talk with Petr Kravchenko, the creation of such a zone presupposes the closure of nuclear electric power stations and the elimination of military bases with nuclear weapons. But the minister stressed—both in his speech at the session and in his talk with me—that, as he put it, "foolhardiness is intolerable," that "there is complex and prolonged work ahead geared not to one year but to a decade," and that "we shall advance in a cautious and balanced way." [passage omitted]

Belorussia Appeals to National Government for Chernobyl Help

*LD0111122490 Moscow TASS in English 1159 GMT
1 Nov 90*

[By TASS correspondents Vladimir Bogdanov and Aleksandr Kryzhanovskiy]

[Text] Minsk November 1 TASS—The Belorussian parliament has appealed to the Soviet president and parliament for help in clearing up after the Chernobyl nuclear accident.

The appeal stresses that the republic is unable to cope with this task itself. There are 400,000 children living in the polluted zone. Belorussia is able to meet only 11 percent of their requirements in special foods. The Belorussian Supreme Soviet calls for the allocation of 40 million roubles up to 1995. They will be spent on medical equipment and clean vitaminised products for the population.

The appeal to the federal parliament stresses that the lack of legislative enactments to solve vital problems in polluted territories tends to aggravate political and sociopsychological tension in the disaster areas.

The Belorussian parliament called on the USSR Supreme Soviet to amend the agenda of its current session and include these problems in it.

Discovery of Radioactive Waste in Lake Ladoga Detailed

*91WN0046A Leningrad LENINGRADSKAYA PRAVDA
in Russian 16, 17 Oct 90*

[Article by O. Tarasov: "What Happened on Ladoga?"]

[16 Oct 90 p 4]

[Text] The first discussion of these events was especially memorable....

The Admiralty, the office of Vice Admiral V. Ye. Selivanov, commander of Leningrad Naval Base; an ample desk sprouting several telephones, one of which was virtually smoking from the justifiable agitation of the office's master. To be more exact, from his impatience. Valentin Yegorovich was attempting to persuade the "center" of the need for admitting this correspondent to the special "object"—so that the events could be illuminated objectively. But at Main Naval Headquarters, things had to be checked out, there were some doubts, there were questions, and no one was willing to make the decision. At least that's what I gathered from Selivanov's reactions. Finally the telephone was laid back on its cradle. The commander related the outcome of the negotiations in a tired voice: They couldn't give permission yet, but....

A few days later Selivanov was able to do what other commanders shy away from, in fear of personal complications. Permission was granted by the country's minister of defense. For this, I express special thanks. I am certain that such a relationship toward glasnost will be extremely important subsequently as well in this matter, discussed below.

THE BEGINNING. The message I have requires me to tell it straight, without beating around the bush. An extraordinary incident occurred on our fabulous Lake Ladoga, the huge storehouse of the purest water, supplying Leningrad's multimillion population: An abandoned vessel with nuclear decay products in its hold was discovered.

This isn't Chernobyl, of course. But it is dangerous. I wish that I could admit to the reader right now that I'm exaggerating things due to the well known tendency of my profession toward sensationalism, but unfortunately, this is a truly serious matter.

I can imagine the chills running down the spines of people who still remember Chernobyl. Let me make one strategically important point that should put a stop to that: For the moment we are talking about a potential threat to the lake, and there are guarantees that this threat will not proceed to its most horrible conclusion. What are these guarantees? What is the scale of the impending danger?

It is in search of answers to these questions that I am cruising aboard a radiation and chemical reconnaissance craft on a course toward the western archipelago.

INDIAN SUMMER. Verbal abuse is heaped upon the days of late fall routinely.... But on Lake Ladoga, seamen inveigh against these days with rather special vigor: Fall storms are so quick in coming and so fierce here that even large military launches take a beating.

But the lake was merciful to us: The waves and wind were from the stern. As if to help the engine along. Even so, a minor incident did occur: A wave smashed against an unlocked porthole, wetting down the wardroom. That was the first time I saw officer O. G. Ozhgikhin at work: He personally stopped the leak.

Ozhgikhin is a subject of special discussion. His role in the operation at the "object" might also be described as controlling "leaks," though in this case far more menacing. Ozhgikhin is the commander of a separate radiation safety group. Two decades he has given to the navy. He has been the head of a special safety group that has conducted extremely serious operations. In particular he managed radiation reconnaissance in the Greenland Sea, at the place where the nuclear submarine *Komsomolets* went down. He participated in damage control operations in which the radiation levels attained hundreds of roentgens.

Naturally he refuses to talk about where and when this happened. Secrecy. But he does make the point that the Ladoga case is extremely straightforward for military professionals—in relation to the "dose" loads on people, and in relation to the potential danger. He relayed some figures from his own personal reconnaissance of the situation.

Clearly the accuracy of an assessment of radiation level is directly proportional not only to the skill of the leaders but also the quality of the equipment. This radiation and chemical reconnaissance craft is a vessel outfitted with the latest word in equipment.

I asked one member of our group, A. P. Sklyanin, director of the interdepartmental nuclear, radiation and chemical safety office of the Leningrad Oblast and city executive committees, for an opinion of the special apparatus. "If only I had such equipment in my office!" It seemed to me that this reply from the chief specialist could be taken in two ways. First, as a confirmation of the high level of equipment possessed by the navy. Second, as evidence of the extreme equipment need felt by this urgently necessary office, recently created by Leningrad's bodies of Soviet power.

We went up to the bridge as the boat approached the archipelago. The short Leningrad "Indian Summer" blessed us with a windy but clear day—a golden sun, a blue sky, and red granite cliffs. Only the bluish leaden hue of the indomitably rolling waves seemed to stress the leaden gravity of the situation.

MYSTERIOUS ISLAND. An excellent locale for shooting adventure films! Scenes of untouched nature bewitched the eyes. The only thing is that there had been a prohibition here for many years against motion picture and still cameras. A "closed zone." Special security. For many years the beauty of nature paid service to the destructive forces of war. More accurately, it was forced to pay such service because peace was absent, and still is now, from beneath the olive trees, from beneath the

palms and chestnut trees, because there is no peace in the world, divided by political passions, ideologies and designs.

This is the crossroads of water highways, almost equidistant from Priozersk, Sortavala and the island of Valaam. The Finnish border is about 50 kilometers away. But boats carrying tourists and fishermen never anchor here, and mushroom hunters never trample the forests. We were just about the first civilians to set foot on these mysterious islands in recent years.

In the meantime M.G. Golovach, the chief of staff of the unit maintaining this proving ground, adds even more to the mysteriousness of the place. Ecologically dangerous experiments with weapons came to a conclusion here back in the 1950s. Structures containing traces of radioactive contamination were immediately removed, and it wasn't even necessary to decontaminate the islands—nature had managed to go unsullied. It's not worth trying to talk about what is going on at the proving ground now. Even given the new level of glasnost, it would be simply absurd to tear at the chest of the "naval jersey" of secrecy. No navy in the world would allow such a thing. But let me emphasize one thing: Work is now being done here by expeditionary methods, primarily in summer; what we might refer to as armament servicing systems which create no hazards are being tested here.

I am communicating all of this not for the benefit of Western intelligence services, which doubtlessly know more anyway. I am communicating this to people living on Karelian and Leningrad soil, for whom the information will be useful.

GHOST SHIP. A dilettante is the worst thing to be. For example, writing about livestock breeding without knowing what lactation is. Or interviewing a chief engineer and not understanding the term "ChPU" [numerical control] or, for example, "TEO" [feasibility study]. And it's not even the terminology that's important, but the knowledge of what stands behind the term, figure or fact.

Unfortunately, in the post-Chernobyl period many "prominent specialists" have appeared among journalists in nuclear matters, ones who can get carried away with juggling "REMs," "doses" and "backgrounds" but having an extremely fuzzy idea of what the danger of radiation is. To such colleagues, 20 microroentgens per hour is a high level of radiation, while 100 of the same units is catastrophe! Their creative journalism is motivated by the competitiveness of the newspaper marketplace, and what such writing has led to is epidemic radiophobia among the population, and economic losses.

I don't feel myself to be a specialist in this field, although I did graduate from the Moscow Higher Technical School imeni Bauman and served as the leader of a work section installing the first two reactors of the Leningrad Nuclear Power Plant—the first, by the way, of the "Chernobyl" series—RBMK-1000. Correspondingly, I received many operational doses during start-up and

repair of the reactors. And now, being the first journalist to step foot the deck of a vessel concealing radiation, I tell all, relying on personal experience and counting on the trust of readers.

The ship does in fact have a ghostly appearance. Vandalized by time and the natural elements, its rusty superstructure, guns and torpedo launchers tower above the water. The oppressive impression is intensified naturally by the awareness that there is danger in the holds.

This is a former class T-12 fascist destroyer that was transferred to our country by way of reparations following the victory. It joined the Baltic Fleet as the *Podvizhnyy*. In the early 1950s it was refitted as an experimental vessel, and named the *Kit*. According to sketchy information, it was used for three seasons as a floating laboratory in experiments I will describe later. What motivated the choice of the scientists can only be a matter of speculation. No documents have yet been found. By the way, no one has even been able to establish yet what archives might contain these documents. It was sunk in a narrow channel between two islands. The bow is submerged to deck level, and the stern rises two meters out of the water.

Let me recall that the hull of the ship is made from high-quality Krupp steel. This provides additional guarantees of safety.

An inspection was conducted in May of this year. Radiation was discovered on the vessel a year previously: Proving ground workers came aboard with dosimeters at that time. The alarm immediately activated the country's military scientific forces.

[17 Oct 90 p 3]

[Text] **HER HIGHNESS RADIATION.** We don *bakhily*—synthetic-leather boots—over our footwear. Smiling, Ozhgikhin knowingly advises us to tie the upper laces tighter: "So the little hairy ones don't slip through!" It seems that folk humor, which has now become proficient in "radioactive" subjects and has already renamed Slavutich as "Zvenigorod" ["Ringing City"] and nuclear power plant engineers as "zvonari" ["bell-ringers"], is continuing in its creative venue. The Latin symbol for a beta-particle is in fact a "little hairy one." Still, this is no place for jokes. Stepping on deck, we immediately turned on our dosimeters. The first reading appeared 40 seconds later. Gamma-radiation—ten microroentgens per hour. Contamination of the deck by beta-particles—100 disintegrations per second. Is this a lot?

POINT OF INFORMATION. The penetrating capability of radiation from one of the products of nuclear decay—beta-particles—is relatively low: They are stopped by clothing, and they do not pass through the skin. But when these particles get into the blood or internal organs, the biological consequences can be

serious. This is why such "dirt" is generally impermissible. The permissible level of "dirtiness" in the operating zone for workers in production operations involving radiation is 200 units.

And so, the deck of the *Kit* is clearly "dirty." We established approximately the same values for beta-particles on the gloves and instruments people who worked here this summer used. We decided to take some readings in compartments within the superstructure. Sklyanin crossed the threshold into the unknown; he pressed the probe of his instrument to the floor of a cramped compartment beside a descending ladder. The screen lit up: 4,342 disintegrations per second! Someone made an attempt at dark humor: It would have been better to have the same thing in rubles. We measured the "charge" carried by our footwear—175 units. Did this mean that beta-particles were enemy number one aboard the ship?

To be sure, the situation was more favorable when it came to penetrating (gamma) radiation. We toured the entire ship, and we lowered dosimeters into hatches on the upper deck, measuring the radiation level in the holds. The readings did not exceed 13-14 microroentgens per hour—normal background values.

There is only one "peak point" at the stern, where gamma radiation coming from the steel hull is almost twice the background level. It may be hypothesized that the bulk of the nuclear fission products are confined here, in the internal compartments. It was impossible to get into these compartments. But that's not even necessary. The problem is solved by safer methods.

BERIA AGAIN? Someone may yet write a story or a novel about the postwar fate of this vessel. The subject is worth its while, and there are plenty of dramatic turns. What I offer here is only a brief outline of the story, based on the conclusions of specialists and certain facts.

As we know, following the explosions of atomic bombs in Hiroshima and Nagasaki, our war-torn country was compelled to leap forward in an effort to catch up with the overseas nuclear leader. The leap was painful, but successful. And for decades the planet was placed on an "atomic swing": The opposing powers swung mankind to dizziness and nausea, working all scientific and productive forces hard in the effort to increase the power of the charges.

In parallel with improvements in offensive weapons, efforts were invested into creating protective resources—so-called radioprotectors, which neutralize the effect of nuclear decay products on man and animals. Inasmuch as strontium-90 is the most aggressive and insidious (concentrating in bones, it is almost impossible to eliminate), the most intensive work was carried out with this element.

It is hypothesized that devices and test media for experiments with strontium-90 were placed aboard the experimental vessel *Kit*. It may be that animals serving as

biological research objects were maintained here as well. The ship dared not come close to shore for fear of the consequences. There is one other opinion specialists hold: that a famous scientist and the hero of the novel "Zubr" [The Die-Hard]—Timofeyev-Resovskiy—possibly took part in this work.

All scientific work having to do with atomic physics was concentrated then in a special omnipotent department, headed by Beria. The scientists doubtlessly had a good understanding of the lethal potential contained in the holds of the *Kit*. The radiation level was hundreds of times higher then. And the life of people working here was probably accompanied by risk, exposure doses and dramatic consequences. Alas, the fate of people and ships was determined in those days not by the wisdom of living logic but by the cruel tyranny of power-seekers. Beria himself, or one of his menials, gave the order, and the former destroyer, having been transformed into a "tomb" containing radioactive wastes, was scuttled beside these beautiful Ladoga islands, at the very edge of the great city.

PLAN OF ACTION. Black bunker oil had solidified in the black hole of the aft magazine, mirroring the clear sky high above. Who poured fuel into here? What was there beneath the blackness? The answers were only speculative. Bunker oil is a serious interference to damage control. It is capable of absorbing radionuclides, which (according to laboratory analysis) were present for the moment only in the bilge water. Petroleum products block treatment of this water. Such is the situation.

Yes, the main source of danger to the lake is water stagnating in the ship's internal compartments, and covering the radioactive products in the holds like an insulating cap. It is for this reason, by the way, that the level of penetrating radiation on deck is low.

To military specialists, refloating this ship was a relatively simple task. Preventing leakage of radionuclides into the Ladoga was another problem. The words of the cheerful song: "Everything Is All Right, My Beautiful Marchioness!" hardly fit the moment. And it would be clear to even a simpleton that radionuclides have been leaking into the lake for many years, albeit in an insignificant quantity. May you be blessed unto ages of ages, our mighty Ladoga! You were able to swallow and dissolve these poisons in your depths, which is why concentrations of radioactivity dangerous to man and nature have never been recorded. Leakage of radionuclides from the *Kit* has now been halted—the hull has been sealed off. The work of removing the source of danger has begun.

The plan for raising and transporting the dangerous object was drawn up by the department's leading institutes. A scientific approach, efficiency, and guarantees of complete reliability and insurance were at the basis of this effort. The operation is being conducted by the Leningrad Naval Base, which possesses the necessary vessels and equipment. An expedition headquarters has

been created. The operation will be supported by almost three dozen vessels of various kinds. The force is under the command of Rear Admiral K. A. Tulin.

He was one of those who lived through Chernobyl. His job there involved 35 days of total personal and official responsibility of the commander of a special force—5,000 men and 200 units of equipment working in the hottest point—within the zone of the damaged power plant. More could be said about that effort, but it's not important to the matter at hand. Something else is important: K. A. Tulin's experience is extremely necessary here on Lake Ladoga, even though the scale of the disaster is incomparably smaller here.

This time around, most of the load fell upon the dive group. The divers basically sealed off the hull of the *Kit* and threaded cables beneath its bottom, to be used in securing pontoons later on.

There are more than enough technical nuances, and it would hardly be worth our while to dwell on them. Let me just note the main points. Unfortunately, we have no technical documents on the captured destroyer, and so the calculations had to be made on analogy with our ships of the same class. According to the calculations the holds contain around 2,000 tons of radioactive water. Understandably each liter had to be purified and decontaminated. How was this to be done under the complex conditions encountered at the site?

CAUTION: BULYGIN! If I were to have my way, I would write a book about this man. I would give it a straight-forward title: "Captain First Rank." Or I might rather inject some humor: "Portrait of a Hero With Filter." But alas, I am not free to embark upon such a story, or more accurately, I don't have free access to information. Vladimir Konstantinovich Bulygin is a professional whose work is classified. But here's the paradox: While his work is secret, his services have brought him fame throughout the country. Quite recently a ukase of the country's president awarding him the Hero of the Soviet Union title was published in the press. Such a high award, as I'm sure you know, is granted in peacetime only in exceptional cases.

As the story goes, whenever Bulygin appears at some station of the nuclear fleet, grumbling breaks out in the disciplined ranks of soldiers and specialists, and many turn requests in for leaves. Bulygin has been the herald of a special danger—radiation. His job is to conduct recovery efforts following accidents in the atomic fleet. More precisely, he is a specialist in decontamination of water "dirtied" by radionuclides of various concentrations.

As the story goes, he was awarded the Hero's star not only for his unique work but also for victory in combat with the world's most steadfast bureaucracy—the military department. Incidentally, this victory occurred back before perestroika. For many long years, the authorities did not want to recognize or utilize the unique filtering

unit created by Bulygin, operating with impressive technological and economic effects. Although he was forbidden to do so, he perfected his idea. They rammed sticks into his spokes, but he saw the job through to the end. Thank God he did. Now he's a Hero.

In the Ladoga operation, Vladimir Konstantinovich was given the job of treating the entire mass of bilge water. A test filtering had already been carried out. The result was excellent. The level of contamination fell below background values. The task at the moment was to manufacture a special device by which to quickly "process" all of the radioactive bilge water in the complex conditions afforded by the operation: While raising the ship and putting it in drydock. The relay of invention—from idea to engineering development to doing the work—was run with remarkable efficiency and speed.

The best design forces and considerable resources were allocated to Bulygin. And here is the result: Workers of the Leningrad Baltic Plant began embodying the concept in metal. And another fact: The filtration unit's "filling"—synthetic resins—had been sent from Kazan. The essence of Bulygin's method lies in a mixture of two components. After one pass through such a filter, the radioactivity of water decreased by four orders of magnitude—that is, by 10,000 times. Luckily contamination of the bilge water of the *Kit* by radionuclides is only an order of magnitude above normal. This was the result of the low concentration of salts in Ladoga water, which possesses unique "drinking" qualities. (There is good reason why Smirnov's vodka at one time ladled its worldwide glory from Ladoga.)

THE LEVEL OF RADIATION—THE LEVEL OF THE PROBLEMS. The question that probably troubles many is this: To what place will they float the ghost ship? What lies in the *Kit*'s future is a graveyard. Where it will be built is the problem currently being worked on by specialists. One thing for sure—it will be many hundreds of kilometers away from populated places. This categorical decision has already been made, even though the "object" will carry relatively low radioactivity after the bilge water is pumped out.

The concluding stage of the entire operation will proceed in summer of next year. By August, according to the plan the ship will be delivered to a floating drydock and prepared for its passage. Accommodations for permanent storage will be completed by mid-September.

I CONFESS that we were happy to leave the place. The awareness of an invisible danger is wearing. The mooring lines were cast off, and the boat put distance between itself and the ship. It seemed as if the former enemy destroyer was still lobbing death-dealing shells—radiation—into our peaceful life. How will this battle with danger end? Who will be the victor?

The boat carried us to the steel radiation and chemical reconnaissance craft rocking on the waves. And then

someone offered a question or an assertion, I'm not sure: "Imagine how many more such 'objects' are scattered throughout the country!"

That is perhaps the main point of this story. The radioactive *Kit*, discovered so close to a densely populated area, within the basin of a vitally important lake, accentuates an extremely serious problem. Harmful armament and technologies were developed at various times in the country, and they were developed in strict secrecy. Understandably, chemical, radioactive and other dangerous substances and equipment were also sometimes destroyed in secrecy. Such "black commanders" as Beria were simply incapable of humane decisions.

Many indirect facts confirm that this is so. The *Kit* is far from the only one. We know that armament had undergone intensive testing in the deserts and water basins, and toxic substances may have been buried there as a result. Time passes, and the skins of the buried and sunken containers fall apart, allowing the danger to creep into our reality. And we are ignorant of it all....

Which of the all-powerful departments—the KGB, the USSR Ministry of Defense or the MVD—will take responsibility for the "clean-up" mission? Who will open up the archives, find the testing documents, and draw up maps of the probable "burial grounds"? At least so that we knew what we should be afraid of. So that steps could be taken to contain and eliminate, and to protect people and nature.

There is something else that is important to find out. People who had taken part in disposing of toxic testing products are alive, doubtlessly still alive. My hope is that after reading these lines, members of the crew and workers of the laboratory of the experimental vessel *Kit* will respond. This is a must for the success of the current operation. My hope is that witnesses of work at other similar objects who possess information that will literally be the salvation of all of us will respond as well....

Soviet, Foreign Journalists Visit Chelyabinsk-40

City 'Kept Secret' for 40 Years

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No 41, 9-15 Oct 90 pp 28-29*

[Aleksandr Guber report: "Classified City. A Story of People Living Next Door to Uranium Mines"]

[Text] More than a hundred kilometres from Chelyabinsk and a little more from Sverdlovsk there is a city that cannot be found on any map.

In that city, plutonium used in the first Soviet atom bomb was procured. The city's industrial association Mayak (lighthouse) works mainly for defence. There are five reactors. Three have already been shut down, and a fourth is about to go out of operation. The last will work until November 1. Chelyabinsk-40 is on the track to conversion.

We Soviet journalists and our French colleagues representing an association of science journalists went there for the first time. When our bus left behind an impressive check point (nobody can get into the city without a special pass), we recalled with gratitude the press club of the Soviet Peace Committee which helped us arrange the trip.

The first thing that surprised us was that a city with a population exceeding 80,000 and huge industries have been kept secret from outsiders for four decades. A vast territory is surrounded by a barbed-wire fence. Security is still tight, and the city is virtually sealed off from everything beyond the perimeter fence.

At first sight, the reason for such measures is unclear. What kind of secrets can there be at a time when foreign journalists have been invited to see the place and receive frank answers almost to any questions? However, certain secrets seem to have remained. Some explain that the barbed wire is still there for that reason. However, it seems that the real cause is different. Chelyabinsk-40 and other such cities have their own life, whose standards have always been noticeably higher than elsewhere. Better housing, higher wages and salaries, better supply, no problems with childcare centres and all the rest. Local residents themselves want barbed wire to protect their well-being, or what is left of it today.

Better Housing Is Not the Sole Reason

The latest developments have added to these quite natural considerations. In the wake of Chernobyl, various ecological movements have been gaining strength. Many of them are targeted against nuclear power itself, that is, against everything being done in Chelyabinsk-40 and the work of local experts. An opinion poll has found that at least nine in ten local residents are strongly in favour of nuclear power. They think that this branch of the power industry is the cleanest of all. This is so despite the fact that local people, unlike the rest of the Soviet Union's population, learned at once about the 1957 accident which left a long trace of radioactive contamination. Failures in the cooling system then led to the explosion of a storage containing nuclear wastes. There have been no accidents at the local reactors for over 40 years. The reactors are the same as those in Chernobyl, except that they are hidden underground.

People have been living all their lives and bringing up children near the site of the 1957 accident, and they are reluctant to go elsewhere. The whole affair is not as simple as it may seem. People working here are professionals who chose this job themselves. Professionals know what radiation is all about and how to avoid exposure to its harmful effects. Local doctors have been saying that the health of the population is no worse than that of the residents of non-nuclear cities. The skill of local work force is very high, not to mention discipline. People with a record of work in Chelyabinsk-40 easily get jobs in other industries. So the people living inside the perimeter fence are in no danger of unemployment.

What they are reluctant to lose is the job they have been mastering all their life and the relative material prosperity. It's always difficult to start from scratch. The people I talked to put the housing problem first - it's impossible to get decent accommodation at a new place at once. Yet, I believe this is only one of the many factors that binds them to the place.

Mayak managers eagerly admit that the veil of secrecy, lack of authentic information, and in some cases even misinformation has proved harmful and led to an upsurge in antinuclear sentiments.

"We have kept quiet about 1957 for more than thirty years. Even when we did mention the subject, we referred to it as something insignificant. We either kept quiet or lied about Chernobyl too. The whole world knew that there had been a disaster, that the reactor exploded, but we kept saying that it was just an ordinary breakdown. Nobody believes us now even if what we say is true. That's natural, and there's nobody to blame," says Gennadiy Romanov, chief of the experimental research station studying the effects of the 1957 accident. "This does not mean there are no indecent people in the anti-nuclear movement, those who are after selfish aims. But it is not they who have produced this situation, it is we ourselves.

Two Hundred Years To Go

We travelled along the trace of the 1957 radioactive cloud. The trees, shrubs and grass are as green as usual. Vegetation recovered quickly and plants with hereditary defects are no longer in sight. Everything seems to have returned to normal. However, the meter showed that the high radiation level still makes the area uninhabitable. One can drive through that area with the necessary precautions, but cannot stay there long. Fortunately, that area was not densely populated - only a few villages had to be resettled. But who knows what would have happened if the wind had carried the cloud not in this direction, but to the city, as happened in Chernobyl.

All of the nearby villages are populated by Bashkirs, although this is part of the Chelyabinsk region and not the neighbouring Bashkir Autonomous Republic. The reason is that in the Stalinist era, such trifles were just ignored. The villages that had to be resettled were Bashkir, too. This has added the nationalist element to the problem: Chelyabinsk-40 is mostly Russian, and the Bashkirs living next to the city experience to the full the effects of what their neighbours are doing. However, in fairness, it must be said that Mayak built good homes for all the evacuees.

The contaminated territory will remain uninhabitable for another 200 years. However, in its least-contaminated part, scientists have reclaimed vast black-soil areas. Vegetables from local farms are sold in Chelyabinsk-40 after strict control. We ate them.

Isolation from the rest of the world has done no good to the atomic cities. Built to last, they still look neglected

and provincial. This is particularly deplorable if we bear in mind the high intellectual and professional level of most residents: Having nothing to compare their life with, local people are rather tolerant towards the legacy of the past others have been quick to get rid of. I mean so-called "visual" propaganda, for instance, such masterpieces as "The enemy is on the alert," "Each working minute is everybody's asset," or "Labour is the cause of honour, valour and heroism." Chelyabinsk-40 has an excellent, newly-repaired theatre which for some reason is called regional drama theatre, although it has nothing to do with the region whatsoever. The amazingly well-equipped theatre and childcare centre were empty when we visited them. I cannot imagine that it is possible to put a childcare centre in perfect order when, according to the director, children had played their minutes ago. Everything - the winter garden with singing birds, the sports grounds, the computer class and the swimming pool - everything looked virgin. Although all that was unmistakably built for children, there was some kind of show-off attitude about it, an attitude found everywhere before, and which has now survived only in special reserves.

Through an Outsider's Eye

In general, what made this trip to Chelyabinsk-40, Chernobyl and the town of Zheltyye Vody, the site of a uranium plant, most interesting to me was the reaction of the French and to the French in those places where people have so far seen foreigners only in the cinema.

The hosts regarded the very fact that foreign newsmen were visiting a classified city and the gates of classified plants were opening to them as something out of the ordinary. They definitely thought that the guests had never seen anything like it and would be incredibly grateful in any case. As for gratitude, it was all true, but the hosts seem to have forgotten whom they were receiving.

Most of the Frenchmen are leading science observers from their country's biggest publications and news agencies. They have many times visited such facilities in France and other countries, which make no secret of them. So they didn't stop in admiration in front of a reactor or uranium mining complex. They had already seen all that. Besides, the knowhow is standard. In some cases, it can be a little better or a little worse - only experts can understand that. As for flaws in construction, poor maintenance, overstaffing and not very clean rooms at the nuclear power plant in Chernobyl, as well as outdated computers in Zheltyye Vody and lines in shops in Chelyabinsk-40, they were clear to the naked eye.

When we were already on the train back to Moscow, I compared my impressions with those of the French journalists.

Jean-Francois Augereau of Le Monde:

"What amazed me most is that normal life goes on inside that barbed wire fence - schools, hospitals and childcare

centres are open. It's incredible that a city of 80,000 people can be hidden like that. I was also surprised at the carelessness with which the people reacted to the contamination of the environment with nuclear waste for so long. I'm impressed by the high professionalism of the experts and their desire to be frank, and I'm really sorry that many of them have lost their bearings and don't know where they can use their knowledge and experience."

Jean-Pierre Defait of L'Humanite: "I could never have imagined that you had secret cities that big. I could have never guessed that the catastrophe we all knew about as the Kyshtym disaster occurred in Chelyabinsk-40. I, too, felt the alarm of the nuclear experts who fear they may go jobless. It's a big surprise to me that in a city sealed off from the rest of the world people can feel themselves to be in a privileged position".

Philippe Escande of the daily Les Echos:

"The total anarchy, which has affected the Soviet economy, has begun to get through to the closed cities. I believe that they are still heavily guarded, not because of their secrets, but in order to protect them from the effects of what is going on around them and the anger of the population. Chelyabinsk-40 and Chernobyl are the sites of major nuclear disasters, so that anger is easy to explain. What is still worse is that there is no certainty that tragedies will not be repeated. To our regret, we saw that part of the equipment was outdated, and order and discipline leave much to be desired".

Jean-Pierre Defait made one more comment:

"In Chernobyl, I felt strongly the uncertainty affecting the whole staff. First the Ukraine decides to close down the nuclear plant. Then the Centre demands that the plant should go on working. Which order is to be followed? That kind of uncertainty in the nuclear power industry can have far reaching effects."

I am ready to back each word of my French colleagues and their conclusion that such trips have become possible as a result of perestroika. They have visited the USSR on several occasions, but they have never met with that degree of openness and frankness. Neither has bonhomie ever before been so much in evidence.

Reactor To Decrease Operations

91UM0054A Moscow KRASNAYA ZVEZDA in Russian
19 Oct 90 First Edition p 2

[Article by KRASNAYA ZVEZDA special correspondent Colonel L. Nechayuk: "In the City Without a Name," passages in italics published in box]

[Text] *To be more accurate, it has a strange name—Chelyabinsk-40. Long ago now, in November 1945, construction began on the first buildings of the new city, and in June 1948 the industrial uranium-graphite reactor designed to produce weapons-grade plutonium was*

brought on line. It was this reactor that provided the metal for the first Soviet atomic bomb....

When the American nuclear weapons monopoly was finally broken, they thought that the dangerous "games with the atom" would come to an end. More than 40 years have elapsed since then, but the nuclear race has not been halted and there is no assurance that it will end within the foreseeable future. Is it any wonder that throughout all these years Chelyabinsk-40 has lived on, and even now is living under a special regime?

However, times are changing. Foreign specialists have visited this "top secret Soviet city," and a delegation of French journalists visited it recently. The trip was organized by the Soviet Peace Committee in cooperation with the USSR Ministry of Atomic Energy and Industry.

They flew into Chelyabinsk in the evening. Aleksandr Ivanovich Pishchepov, deputy director for procedures at the "Mayak" Production Association, and Yevgeniy Georgiyevich Ryzhkov, chief of the public relations group. They were both cordial and affable but noticeably perturbed. This was understandable: A year ago the very thought of such a meeting had entered no one's head.

The "Ikarus" bus with the guests and the accompanying state automotive inspection vehicles threaded their way through the suburbs of Chelyabinsk and out onto the highway. Just over two hours of uneventful travel through the now darkened steppe brought us to a broad, well-lit square with squat buildings. Between the buildings, instead of gates there were things similar to turnstiles, only larger to admit automobiles, with trestle work on the sides, evidently to permit observation from above. The guard was mounted by soldiers of the Internal Troops. And although their appearance was by no means severe, one of the Frenchmen made a somber joke: "Colleagues, are you sure that we will be able to get out again?"...

And one involuntarily recalls that much in the life of the city and the fate of its inhabitants were at one time connected with the department of Beriya. It was he who was personally responsible to the leader for the development of the atomic bomb and he often visited this and other "atomic cities." While he understood nothing about physics or the technology in general, Beriya was his own power, and established what was described as fierce "secrecy," when a word out of place could cost a man his life.

That is all far in the past. And it is only the old-timers who remember that the present Victory Boulevard was at one time named Beriya Street, and that the arrival of the leader's companion-in-arms in the city was in a limousine captured as a war trophy, with its bullet-proof windows.

The people brought together by Beriya's department from all parts of the country put their hearts into their work for decades, and deserved the orders and rewards that they received, and recognized with pride that they

were making weapons to defend the motherland. Children grew up and went away to their studies, and almost all of them returned to their old city behind the barbed wire and continued the business started by their grandfathers.

More than 80,000 people live in Chelyabinsk-40 today. Not counting construction workers and workers in the services sphere, most of the adult population works at the "Mayak" Production Association. It includes reactor, radiochemical, and radioisotope production facilities, and enterprises producing instruments and special (read "military") output.

The director of the association is Viktor Ilich Fetisov, who is also the chairman of the city soviet of people's deputies. Telling his guests about the production problems, he willy-nilly switches to social problems—the relationship between people and complex equipment, and the city and its surroundings. I think that this is not only because they have always been particularly closely interwoven here. The knot of these problems is tightly drawn in this time of change for the country.

"In the past three years," Viktor Ilich says, "we have shut down three reactors, and in July of this year a fourth was shut down, and the fifth, the last, will come off line on 1 November. Energetic plutonium for peaceful uses will still be produced, but not weapons-grade plutonium."

"Does this mean that you will be shutting down the reactor plant which is so obsolete?" asks Philippe Eskand from the Paris economic newspaper LES ECHOS.

"No, it is quite up-to-date and the reactors are able to operate efficiently until 1995. There is simply a production cutback in accordance with the decisions of the country's leadership."

"How many people are employed in reactor production, and at the association in general?" Jean-Pierre Defe [name as transliterated] from L'HUMANITE wants to know.

"I fear that if I name the figure," Fetisov smiles, "you will interpret it incorrectly: How do we do it? You must all be Jacks-of-all-trades, you will think...."

"But I am really asking about how many people work on the reactors, not those who do sewing or reaping or play the flute." To the laughter of those present, the French journalist clarified what he meant.

"Well then, count them for yourself: Each shift at reactor needs 28 people, there are five shifts a day...." The director surrenders.

"You have been in the United States, and have no doubt been convinced that there are many problems connected with environmental pollution at factories producing plutonium. What is the position here?" asks Serzha Berga [name as transliterated], the oldest of the French scientific journalists.

"We have also been unable to avoid this, especially in the beginning when we had no experience," answers Fetisov. "but during these last decades all has been normal: There have been no leaks, no emissions. We are paying for our old sins: The Techa River and Lake Karachay have been contaminated with a considerable quantity of active substances, and an explosion at a waste storage facility in 1957 has also passed on its 'legacy.' We are now engaged in rehabilitating contaminated territories within a sanitation cordon. I think that we will return to a normal life."

The reactor plant is about 10 kilometers from the residential zone. Buildings and installations built in the style of the 1950's can be seen through the thick greenery of the trees. The most impressive of them, as high as a 10-story house, is a central reactor hall. A signboard is affixed to the wall at the entrance: "Second Series-Produced Energy Installation in the USSR. Brought on Line April 1951. Shut down July 1990."

It is like a gravestone. The reactor was "alive" for 39 years, and moreover without a single accident or serious shutdown. It was shut down only once for about two months in connection with its latest round of modernization. There were many of these, the last following the Chernobyl catastrophe. But originally the reactor was designed to operate only for five years. How did it achieve its longevity and—the main thing—its reliability?

"In contrast to the Chernobyl reactors, all of ours are located underground in concrete shafts," plant director Vitaliy Ivanovich Sadovnikov explains. "If the same had been done at Chernobyl and the same kind of accident had occurred, it would not have been so unfortunate. It was a senseless and incompetent desire to save money when building the Chernobyl nuclear power station that led to the tragedy. In general, any modern equipment, especially nuclear equipment, has stricter operating requirements and will not tolerate superficiality, irresponsibility, or lax discipline. Here this has been absolutely eliminated, and not only through the strict requirements made of organizational work but also through the entire tenor of life and the many years of tradition established by Igor Vasilyevich Kurchatov."

Although Vitaliy Ivanovich's opinion seems categorical, it can be believed. It has been carried through many years of personal experience, and indeed through his entire life, which has been an inseparable part of the destiny of Chelyabinsk-40. He has been here since 1947, since he was a child. His father built the first reactor and worked on it as an operator and a shift chief. So the director comes from a long line of nuclear people.

Space deprives me of the opportunity to describe the system used in training and study and in passing on experience and skills gained over the long years at the "Mayak" Association. Let me say merely that today the experts at Chelyabinsk-40 are without exaggeration the

best in the business—aces, like test pilots in aviation. Only here their "aircraft" is doomed to stay on the ground.

We don special footwear and white coats and hats. We walk in the drizzling rain to see the "sleeping" reactor. A massive reinforced door filled with lead pellets leads into the central hall where the fuel used to be loaded into the core.

The hall is huge, rather like a testing and assembly building at a space launch center. In the middle of the hall there is a large circle set out like a tile pattern, with square metal plates.

This is the upper part of the reactor, its former active zone. As they say here, the "snout" [pyatak]—the zero mark—and all the equipment reaches deep into the ground to 53.3 meters.

The AV-2 uranium-graphite reactor that we are talking about is a vertical cylinder. Its center part is the core, lined with graphite bricks. The diameter of the masonry is 11.8 meters, its height 7.6 meters. It is evenly pierced with vertical apertures each with a diameter of 60 millimeters and spaced at a distance of 200 millimeters. In all there are 2,001 of the apertures, or cells, as the experts call them. And it is into these that the so-called assemblies are lowered—rods made from uranium-235 and uranium-238. Now they are empty, covered with the plates that rattle underfoot.

The neutrons emitted by the uranium-235 are repeatedly reflected by the graphite and lose energy until at about 5MEV the nucleus becomes uranium-238 and can absorb the neutrons and become plutonium. It takes several months to process a given amount of plutonium.

It is understood that during these processes strong radioactivity is given off, and it is necessary to protect personnel and the environment. This is how it was done with the AV-2. The active zone and its sides were protected by three layers: water and sand, each to a thickness of 1.5 meters, and a two-meter-thick concrete wall. Above, there was a layer of sand and bathite ore [batitovaya ruda] 1.5 meters thick and then a three-meter layer of concrete, and finally, a pool of water 1.5 meters deep. The result was that around the reactor the level of radioactivity was no greater than the background level.

We went through the entire premises and into all the nooks and crannies. It was like being on a ship that had been abandoned by its crew and made ready for scuttling. This was probably due to thinking about the crew. People who possess invaluable experience and the highest, although very specialized skills, now have nothing to do. Where are they now?

Vitaliy Ivanovich's answer was slow in coming.

"It was hoped that our specialists would make up the backbone of personnel at the South Ural nuclear power station and be able to work without having to move from

their homes, passing on their knowledge, experience, and traditions to the new shift. Construction was halted and the hope was dashed. Some have tried to get jobs at existing nuclear power stations, but they are not used to this and there are complications—with apartments and living conditions. Conversion remains, and we will be seeking out new paths for tomorrow....

"The situation is very similar to that associated with the reductions in the Armed Forces, even though provisions or promises were made for officers and warrant officers with respect to some kind of social guarantees. But people who were in the Army and Navy now must depend on themselves."

"But perhaps your specialists could be sent abroad to work there in their profession?" This was seriously proposed by one of the French journalists.

"I do not think that things have gotten that bad." The director of the "Mayak" Association joined in. "Our plant is not the only reactor plant. Things should not be irreparable. Although it is difficult, conversion is taking place, and laws are also being drawn up on conversion and on nuclear power engineering. I think that they will alleviate things for us. And for anyone with a head on his shoulders the things already done offer some prospects."

When we departed we strolled round the streets of the city, which, I want to assure you, deserved its name. We found a museum devoted to Academician I.V. Kurchatov, the leader of our uranium project, as it was then called, the founder of Chelyabinsk-40. His monument stands in the center of town. We visited the city drama and puppet theater and a fanciful kindergarten called "The Pearl," and we stood on the banks of the Irtys River, along which a broad park stretches. The clean and agreeable city, buried in greenery, was like an oasis among the villages and settlements around. How difficult it was to make it thus, how easy to make it into a commonplace rayon center.

Riga Water Supply 'Poisoned'; Pressure Drops

*LD0811184190 Riga Domestic Service in Latvian
1000 GMT 8 Nov 90*

[Text] The Riga Water and Sewerage Board says it is necessary to cut the water supply to the city from Daugava Reservoir due to the leakage of harmful substances from the Novopolotsk Polymer Works.

Therefore, water pressure throughout the city has been reduced, particularly in Pardaugava, downtown Riga, Jaunmilgravis, Vecmilgravis, and (Kengarags). Water there can reach only the ground floor.

Specialists at the sanitary epidemiological station explained that the filtering of poisoned water into the city's water supply will not be allowed.

Water reaching residences in the rayons mentioned is being taken from underground water reservoirs and

artesian boreholes. Even so, it is recommended that water be boiled before it is drunk.

Poisoned Riga Water Supplies 'Stabilized'

*LD0911153390 Riga International Service in Latvian
1830 GMT 8 Nov 90*

[Text] We have already reported on the ecological catastrophe that has affected the Daugava. As a result of an accident at the Novopolotsk Chemical Combine, prussic acid has leaked into the water. With the current the pollution is approaching Riga. Yesterday in Daugavpils the appliances taking water from the Daugava were completely cut off. Residents on the banks of the Daugava are being systematically warned of the dangers that could arise from use of the river water for drinking or household purposes. Today the situation in the greater part of the river is reported to have stabilized, because the toxic substance is said to be very volatile. However, the state of the water is being continuously monitored. This morning the water supply was also cut off to the rayons on the left bank of the Daugava in Riga. Pardaugava is supplied with the waters of the Daugava from the Riga Hydroelectric Power Station water reservoir. In this connection, the water supply is affected also in other rayons of the city.

Ukrainian Greens Official on Group's Political, Ecological Goals

*91WN0031A Kiev KOMSOMOLSKOYE ZNAMYA
in Russian 28 Sep 90 pp 4-5*

[Interview by V. Tsion with Andrey Glazovoy, deputy chairman of the Zelenyy Svit (Green) Association of the Ukraine, date and place not specified: "Green—the Color of Salvation"; first paragraph is source introduction]

[Text] I first heard about the existence of the Green Party about ten years ago. It seems that the television program "Vremya" (Time) showed us, the Soviet viewers, bearded men in shorts, who were introducing something like panic into the officially respectable life of the West German Bundestag. The calculation of our ideologists was simple: look at what these capitalists, these rotten bourgeois governments have brought their peoples to in the pursuit of ready money! In order to increase the righteous indignation about their predatory policies, their customs and their inhuman morality, the happy Soviet viewer (who could not even dream of such horrors!) was "treated" to a ghastly tale about the Rhine, the cesspool of Europe. But the first domestic greens were not shown on television, and the ecological demonstration which they organized to mark the anniversary of the Chernobyl disaster, was dispersed by the police. Some two years have passed and we are no longer surprised by pickets at the Khmel'nitskiy AES [Nuclear Electric Power Station], by placards at the Supreme Soviet, nor by the funeral rites for a murdered tree organized by the greens in Goloseyevo. Moreover, in the recent elections the Zelenyy Svit (Green) Ukrainian Ecological Association

presented itself as a real political force. The creation of a Ukrainian green party is on the agenda, something which the papers reported as early as this spring. Our guest today is the deputy chairman of Zelenyy Svit (ZS), the historian and journalist Andrey Glazovoy.

[Glazovoy] The first ecological groups in the Ukraine appeared in 1987. In 1988 many of them turned into mass organizations. The ecological movement developed with particular energy in the Crimea, the Carpathians, Chernovtsy, and Odessa. A while later many of these organizations united into a republic-wide association. By the way, the process of unification was difficult; there was a certain amount of mistrust. And the Belokamen-naya organization, in its efforts to create something immense, at first sent us... directives. What can you do—the paradoxes of Moscow thinking are characteristic even of democrats. Today it is funny to talk about this, but then the unknown Moscow People's Front was showering instructions on the Baltics, which were picking up speed. However, in early 1989 (according to data from the UkSSR Committee on Youth Organizations) the Ukraine had about 300 informal ecological associations in operation, but today their numbers have sharply decreased, above all because the weak ones have disbanded, while the strong ones have joined together in Zelenyy Svit. It is difficult to say how many members there are. Sometimes the figure of half a million appears in the papers. I would give a more conservative figure: the republic has approximately 15,000-20,000 people participating actively in the green movement on a regular basis.

[Tsion] Your organization is, after all, one of the few which in a relatively short time has managed to achieve very real and substantial results.

[Glazovoy] They are constantly saying to us that we picket, raise a fuss, shout, hold demonstrations in gas masks, organize rallies (sometimes, it is true, with our mouths bound shut, as when we were protesting discrimination against our candidates in the elections), but we do nothing.

And today the greens are picketing the Khmelnytskyi AES; they are presenting its director with a mutant pig and a bouquet of flowers, which are also mutants. Of course, this is the purely external aspect of our activities. But it is also necessary in order to shake people up! And one must not think that we limit ourselves to this. While some people are "laying siege" to the power plant with placards and signs, others (scientists from our expert council) are engaged in serious research work. Incidentally, our first independent expert panel was held on the subject of Khortitsa Island. Scientists from the Council of Production Forces and other academic organizations have done all the essential work free under the aegis of ZS. And in time this expert commission helped to save this wonderful island; it is true that today the Zaporozhye City Soviet is again "bursting forth" with its idea of a "cheap bridge." Then there was Bykovnya, where a former mayor of Kiev, Zgurskiy, and his team wanted to

build a station. After joining the "fight," the local group of informals, who were then not yet members of ZS, turned to us for help. Above all they needed publicity in the mass media, as well as scientific-methodological support. Our specialists held an alternative expert commission, which completely destroyed the assessment of the forest carried out by the gorispolkom [city soviet executive committee]. The official experts saw in the Bykovnya forests only a timber deal. In our report the price came out about three times higher because we took into consideration not only the cubic meters of timber, but also the amount of ozone which the city would not receive, the ant hills which would be killed, the oxygen losses... We have special calculation methods; they are approximate, of course, but they do guarantee accuracy up to a million rubles.

However, one cannot claim that it is only the greens who have accomplished things. As a rule, we work with Rukh and other organizations, or simply with individual volunteers. As for specific projects, they vary from cleaning up a small river near Odessa (in which oil floated before and now crayfish swim) to halting construction of the Chigirin AES.

However, expert commissions are the prerogative of the organization's headquarters. No less important is the work of the rank-and-file activists. Let us talk about Khortitsa again. Anyone who has been to Zaporozhye knows what this city is like. Pure sulfur pours straight out of smokestacks there, and everyone who forgets his umbrella at home risks ending up under acid rain. As a consequence, there is a high mortality rate and a higher than normal rate of childhood illness. And literally in the midst of this industrial hell is a little island of living nature! It is something unique and astonishing! There are places where even rare plants have sprung up, and there are six burrows in which fox families live! Of course, the island has a nature-preserve administration, which is supposed to protect it. But its staff is small and its resources meager. The main point is that there is in operation here a public Committee to Protect Khortitsa, which was established by the local journalist Konstantin Sushko (the Committee subsequently became the nucleus of the Zaporozhye Division of Zelenyy Svit). Volunteers (ordinary school children and older students) protect the nature preserve; they drive away poachers and prevent vehicles from entering. They partitioned off part of the island; it is a heavenly place there now. That is, the greens did what the state services had not managed to do in decades! And during all this time Khortitsa, according to documents, was protected by law.

The protection of the law is not something you can put your hands on. It is the real people, keeping track of every burrow and every hedgehog and protecting each individual fox, who have achieved the impossible...It is those very real actions which we cannot get along without. However, green practice cannot be separated from green policy; otherwise one fine day a bulldozer will appear (it is unimportant whose—it may belong to the

Ministry of Water Resources, the Ministry of the Chemical Industry or the Ministry of Atomic Energy), and all the hedgehogs, burrows and ant hills, all the colossal labor of the volunteers will go under the shovel. Here lies the basic miscalculation of our old organizations, including the Society for the Protection of Nature (SPN). They were afraid to enter politics, and for this reason they reminded one of defenseless young naturalists, shaking not only before every ministry but also before every chairman of a city soviet.

[Tsion] Most likely it was in order to concentrate efforts on political actions that a core group came forward from within the ranks of the association to take the initiative in preparing a green party congress?

[Glazovoy] Undoubtedly. Speaking honestly, Zelenyy Svit had an undistinguished election campaign. The weak spots in the movement showed up here. On the one hand, it is good to do things on a massive scale, but on the other, the lack of a firm structure led to a situation in which we were frequently late with an effective response, and we did not get up-to-date information soon enough...Incidentally, many Western countries have mass ecological movements (for example, the West German Bund) and green parties which exist in parallel. The latter, as a rule are not large, but mobile, well-organized and that means able to function well. Naturally, our Ukrainian green party will concentrate, above all, on politics, that is, on work in parliament, in government, in the soviets at all levels and in the mass media. In other words, it will carry out political lobbying in the ecology sphere. This is indispensable. Without it you cannot straighten out the nuclear power situation, you cannot resolve the problem of building radar stations (the owners here are serious ones—the Ministry of Atomic Energy, the Ministry of Defense)... And, of course, ideological work. Incidentally, two trends have been identified in our new party, as among our colleagues abroad; they are identified with the “fundamentalists” and “realists.” The “realists” think that the green party of the Ukraine is a special phenomenon, for this reason it must be firmly “linked” to today’s realities in the republic. In that they are undoubtedly right, and many of their proposals are being taken into consideration. The “fundamentalists,” in contrast, think that the greens must be guided by universal principles which are the same for all countries (greens, they say, are green in Africa too). It is another matter that in every specific political situation it is necessary to look for these allies or make those contacts. The West German greens, for example, at one time slipped up badly in their contacts with the communists. With the social democrats everything is OK, the alliance has proved to be effective. Although, of course, they are not thrilled with each other: the greens consider the social democrats to be linked with the bourgeois establishment and too pretentious. The SD’s [Social Democrats] on the other hand, see in the greens cranks who want everything here and now. On the other hand, this is not surprising; after all, the greens in their country are a left-radical party, which arouses the caution of the ordinary burgher.

[Tsion] But to return to one’s roots—in which political forces of the Ukraine do you see your closest allies? What are your relations with the Communist Party?

[Glazovoy] Their communists and ours are not the same. In our country they are the ruling party, or more accurately, organization, and it is unimportant what it is called. It is true that today greens are part of the ruling coalitions in Ivano-Frankovsk and Ternopol. I think that with the development of a multiparty system, the greens will not have a great influence. As for me (as a “fundamentalist,” you will not get anything out of me), in general, I think that it is preferable for us to remain in opposition. For ecology this is useful. But it is difficult to predict the political future. If we are among the government parties, good, if we are not, even better. As for allies, in the Supreme Soviet, for example, our people naturally joined the Narodna Rada, and they were in the democratic bloc from the very start. We have traditionally had good relations with Rukh, and quite satisfactory ones with the republicans. Guests from the West are surprised; after all, the URP [Ukrainian Republican Party] stands for principles of traditional classical capitalism. In their Western countries an alliance of the left-wing greens’ with right-wing conservatives would be simply impossible. But at the present stage of democratic changes it is necessary to look for points in common with today’s “rightists” as well as the “leftists” (naturally in the classical, and not in our homegrown “broken-mirror” interpretation). Recently I was moved by an interview with a people’s deputy of the Ukrainian SSR, the first secretary of the Bakhchisarayskiy Party Raykom, which was published in the local paper. It said that supposedly on the very first day in parliament a bloc emerged with an anticommunist, anti-Soviet foundation, and it included representatives of Rukh, Tovarystvo Ukrainskoy Movi, Zelenyy Svit and so on. And this is very typical. From the very beginning our communist leadership (I do not say communists because a democratic platform has become part of the People’s Council [Narodna Rada]) itself marked off a delineation: we and all the rest. And it made monstrous efforts to keep everything that way. For this reason it is logical for us to have an alliance first of all with those who advocate democratic principles. But whether they are “rightists” or “leftists” is not of primary importance. Incidentally, Zelenyy Svit is also participating in the work of a new organization, the Alliance of Democratic Forces, in which both larger movements as well as small parties are represented.

[Tsion] Andrey, you said that it is preferable for the greens to remain in opposition. But in that case can you count on having your opinion taken into account when important government decisions are being made?

[Glazovoy] In countries with multiparty systems, (not with two-party systems), in the Netherlands or the FRG, for example, a party which has won more than five percent of the votes in an election is already a real force; it is in a position to influence policy and “stand firm” in parliament. As a result of pressure brought by the West

German Green Party a whole series of measures was adopted to improve the ecology of transportation. Under the influence of the greens, the Bundestag decided that about two-thirds of the state funds allotted for energy were to go for the development of nontraditional alternative forms of power! In general, however, there are two paths in the theory and practice of environmental protection: the European and the American. The European way consists of public movements of the green type, which draw people's attention; they picket nuclear power plants, lie down on the rails in front of trains carrying radioactive wastes or join hands to block the movement of trains carrying toxic freight. That is, the raise-the-alarm path. And there is the American way. After reports by very serious ecology specialists (such as Barry Commoner and others), the American government established—as long ago as 1970—the Federal Environmental Protection Agency with exceptional powers. It levied crushing fines on polluters, it had the right to close any enterprise. The best specialists were recruited to work for it, and no expense was spared for them. The best experts in America were invited to carry out ecological monitoring or to analyze any given situation. This federal agency has accomplished a great deal. In the last 20 years the United States has achieved colossal success in the area of environmental protection. Not only have the Great Lakes been saved (which, if you recall our Baykal and Aral, is by itself unprecedented). They have restored cities to a satisfactory condition, solved the problem of gas pollution, etc. etc.

[Tsion] Probably only rich nations are in a position to do such things. After all, if they close some small plant in Svidrigayloka tomorrow, half the country will end up without baby food or some other item. Something like that happened with the packaging for food products after one of our pulp and paper combines was closed.

[Glazovoy] The situation in their country is different. After all, if the state ruins Ford, the state itself does not suffer at all from this. In our country the state is a super monopoly which owns all the plants and factories. No matter whom we "go after," we end up attacking the state. No matter which ministry tries to beat us off, in the end, it is the state which has the reins in its hands. It is no accident that greens throughout the world are actively engaged in antimonopoly activities.

[Tsion] However, one of the points of our economic reform is the demonopolization of production and the privatization of the economy. But here something disturbs me. It is no secret to anyone, for example, that in Russia the ecological movements frequently close ranks with antimarket, right-wing populist forces.

[Glazovoy] Well, in the first place, if it came to that, let us make a distinction between the greens and the ecologists. They are not exactly the same. The concept of the greens includes not only the struggle for environmental protection but also the struggle for social justice. Moreover, for us this means the maximum reduction in the rights of the state (it is no accident that greens have one

foot in the youth movement of the 60's, and they accept many elements of scientific anarchism). In the Netherlands, for example, there are "anarchist greens." In short, we are for maximum independence for the municipalities, and not only for them. We think that the state is above all an association of groups of citizens taking initiative according to their interests. The state only sums up the efforts of citizens, nothing more. It can be a sort of steward, but in no way a dictator, nor a ruler and not a leader. We do not believe that some day (as the ecologists think) a good state will bring order to ecology. Neither an intelligent tsar nor an enlightened minister will accomplish anything here. Unless all of life is truly democratized, unless it is humanized, unless social problems are resolved, no other problems, including ecological ones, can be solved.

[Tsion] But this question is addressed to you first of all as a "fundamentalist." What do you think, in the actual situation which has developed in the Ukraine is cosmopolitanism a positive or negative phenomenon?

[Glazovoy] This question disturbs us greatly. On the one hand, throughout the world the greens are one of the most nonnationalistic of parties. It is impossible to resolve global ecological problems within closed national boundaries. But in the given situation in the Ukraine (and here the fundamentalists and realists agree) the national movement is undoubtedly progressive. It is not, after all, directed against another nation, it is directed against an empire, and consequently it is justified and completely natural. Incidentally, Western colleagues who visited the Ukraine originally looked at us with suspicion: these greens, they thought, who cooperate so closely with national organizations, are strange. We had to persuade them (and in the end they were convinced) that our national movements are sufficiently specific. They attended a rally of Rukh in Odessa, which took place under blue and yellow flags, where no one spoke a word of Ukrainian, and what is more, could not speak it. They saw two small boys who were trying unsuccessfully to talk with us in the language of their grandfathers. They were struck by two Jewish members of the intelligentsia hurrying to an event organized by the Society for Jewish Culture: in their button holes they had little blue and yellow flags. At one of the Kiev rallies, when they saw Ukrainian national banners together with Baltic, Georgian, Jewish and Russian ones, they finally became convinced that our alliance with the national forces was justified. The main thing that distinguishes the Ukrainian greens from the Western ones is their attitude toward the revival of the national culture and language. For us this is a painful problem. Although, it is true, the Norwegians are now also upset about the state of their old language. In this way we understand ecology not only as the protection of nature, but in a significantly broader sense, as the protection of the environment in which man lives, his spirituality and all the rest. And because the national and historical elements of our culture have been destroyed everything needs to be restored. It is simpler for the Western greens—they inherited their national cultures in an excellent state.

[Tsion] And, in truth, one can hardly expect from a denationalized person a respectful attitude toward the land of his ancestors. What does Khortitsa and its trampled ground mean to him? A person who has lost one's native language is like someone who has lost his mother. He spits on his native history, on the ancient symbols of his grandfather's land. A person of that ilk will not feel his heart touched at the sight of a ploughed up burial mound or a destroyed Kazakh grave... One cannot help but recall the respectful attitude of the Lithuanians toward their traditions, their history, and that means to their land. Maybe they resisted so desperately the construction of the Ignalina AES because they remembered that over there, at that oak tree, King Gediminas changed his faithful horse upon his return from a long crusade. Ecological consciousness does not develop on barren ground. Literature and journalistic writing play an important role in its formation. But what disturbs me is that with the seeming abundance of publications which vividly describe the horrors of an ecological catastrophe which is real for us, one does not so frequently encounter intelligent, well-crafted, accessibly written articles which would develop in the reader an ecological culture in a broad, I would even say planetary, sense.

[Glazovoy] You are right. In the West they call this deep, all-encompassing ecology. This problem is reflected in quite a bit of detail in the Zelenyy Svit platform. Alas, at present few of us can talk about this in an easily accessible and broad manner. There is Academician D. Grodzinskiy, who understands and writes about ecology in a global sense. Or such ZS leaders as A. Demidenko and N. Preobrazhenskaya, who interpret ecology at the level of a world view. And there is S. Grabovskiy, who is seriously engaged in providing "philosophical support" for the green movement: he writes interestingly, although not always accessibly.

For now we mainly "shake things up." The times are such that at first it is necessary simply to shout. Although, of course, cries of down with nuclear power plants are not enough. It is essential to develop the new thinking, to teach people to interpret the entire world as consisting of harmony among man, the biosphere and civilization. Alas, at one time ecology fell into the same category as genetics and cybernetics in our country. In the West even literate greens, who recite by heart Teilhard de Chardin, to our shame (not theirs), have not heard the name Vernadskiy! And where could they have heard it? After all, Vernadskiy was one of the fathers of today's ecological philosophy, one of the forerunners of today's green movement. What did we know about him? Everything was lost, mutilated... The Ukraine has almost no professional ecologists—there was no one to train them. However, biologists—they are not so bad, better in any case (I ask for forgiveness in advance) than livestock specialists or agronomists.

[Tsion] In short, for a start ecological propaganda is necessary—clear, accessible, popular... At present it seems to me that in our country only a small group of

university intellectuals is studying green problems in a truly deep way. In my opinion, several other forms are necessary... For example, I myself would participate with enormous pleasure in an eco-campaign on my day off; I would do some work with a shovel, cleaning out a polluted river. I am not talking yet about a well-organized youth camp. What is attractive here is not just the so-called green aspect but the purely psychological one as well. For many young people who are not too communicative this would be a splendid opportunity to get together and make new friends.

[Glazovoy] In this area, of course, we are still underdeveloped. But, God willing, everything lies ahead. The main point is that the first shoots have already appeared. As for camps and campaigns, here the ecological section of the Lvov "Tovaristvo Leva" has succeeded. Incidentally, it is fully independent and is not a part of Zelenyy Svit. For several years in a row the young people there have done a brilliant job of organizing catamaran expeditions down the Dnestr. As a result, a detailed ecological map of this long-suffering river has been compiled. Incidentally, the Lvov people are very similar to typical Western greens: the same marches, the youth tent camps. Although when talking with young people in general, we have a problem. Our green movement is one the "oldest."

We had one other problem... You probably know the favorite line of the nuclear power supporters: "Fine, we will close the nuclear power plants and we can all live by torchlight." For this reason we are trying to offer alternatives. As for nuclear power, it would seem that through joint efforts it has already been proven that this is not the only possible way. We can manage fine without it. There are energy-saving, nontraditional sources... If we would heat the sky a little less and produce fewer goods that no one needs, we could manage easily without nuclear power plants. Let us look at how it will be in this regard with sovereignty, to whatever extent that becomes a reality. After all, at present even the most menacing decrees of the former Supreme Soviet (for example, the ones on Rubezhnoye, Lisichansk and Severodonetsk) are not functioning and will not function. No one is paying attention to them, they are not funded, and that means, where will the people who wish to carry them out come from? In addition, the Union ministries had in mind the Supreme Soviet of the Ukraine with all of its decrees. Contacts with Russia are another matter. More and more they will be with the Russia of Yeltsin. But for now there exists Moscow imperial thinking (and it is Moscow thinking, not Russian thinking), and for now they look at the republics (including Russia) as if they were colonies; the only path for the greens is independence.

Let us try to abstract ourselves for a moment from personal patriotism and imagine the following profoundly pragmatic formula: "Can ecological problems in the Ukraine be resolved while we remain part of the Soviet Union in its present form?" The answer is absolutely unambiguous: "It is impossible!" And this has

been proven many times. As long as the imperial structure exists, as long as every ministry conducts itself like an occupier in the republic, we will achieve nothing. Thus, even when we discuss matters purely pragmatically, putting aside such noble feelings as patriotism, it is easy to come to the one possible conclusion: only with an independent Ukraine will it be possible to pursue ecology in a genuine way.

[Tsion] But even then there is the danger that instead of the Union monster-ministries, "native" Ukrainians will continue their evil deeds?

[Glazovoy] Yes, there is that risk. It would seem that the Ministry of the Chemistry Industry, for example, after changing from Union to republic status, will do the same things... But it will be much easier to "dish it out" to such a ministry when it is in Kiev rather than Moscow. And it will be simpler to apply pressure, although I do not comfort myself with illusions. Ecological problems will exist even in an independent Ukraine, and I have had occasion to meet many managers who are ferocious destroyers and murderers of nature, and all the same they are my compatriots. So we should not vulgarize everything and say that the whole problem lies with the "Moscow occupiers." It lies with the Moscow system, it is true, but those who carry it out are home grown. So it is naive to think that once independence has been obtained, paradise will reign. For this reason I am confident that then, too, the greens will remain in opposition.

[Tsion] Earlier you mentioned the Society for the Protection of Nature, which is currently doing well. How are your relations with it and other environmental protection organizations developing?

[Glazovoy] At first the society displayed a hostile reaction to us, while the republic-level State Committee for Environmental Protection (Goskompriroda) tried to show that we could not be. When a small notice appeared in RABOCHAYA GAZETA in January 1988 saying that Zelenyy Svit had been established, an incredible scandal arose. D.I. Protsenko, then chairman of Goskompriroda, called Yelchenko, who in turn called the editorial board. Protsenko tried to prove that there could be no greens and that nature was the prerogative of Protsenko and her committee. But recently a public committee was established under the auspices of Goskompriroda and greens were invited to participate. The idea was that the public committee should define the policy of the state committee. Alas, as before, Goskompriroda continues to do what it considers necessary. And, after all this body has colossal rights, which to its shame and disgrace are going virtually unexercised. It can halt any construction, close down any production unit, adopt the most radical measures. But it limits itself to only symbolic fines of 20, 100 or 200 rubles. Goskompriroda is a sleeping tiger, put to sleep by its own leadership. But in general, we want to be friends with everyone. And with the Society for the Protection of Nature too. Incidentally, until recently it had about 19 million (!) members (this is more than the

working population of the republic). To be fair I should note that a large number of gifted and energetic people work there, both locally, in the oblast organizations, and even in the apparatus. But there are also those who have simply found themselves a quiet warm place. The main deficiency of the Ukrainian SPN is the impenetrable conservatism of its republic leadership.

Recently many Ukrainian SPN activists, including veterans of the society (people such as "Grandpa" Grigoriy Goncharenko, candidate of biological sciences) have been coming to us with increasing frequency, bringing with them good practical ideas. After all, we are too politicized. And, you are right, we need as many elementary ecological practices as possible in each individual home and apartment building.

[Tsion] And, in conclusion, a few words about your work in Zelenyy Svit, about the current problems of the association.

[Glazovoy] The chairman of ZS, Yu. Shervak, doctor of medical sciences and USSR people's deputy, has four assistants. A. Panov is responsible for organizational, financial and economic activities. Academician D. Grodzinskiy has taken upon himself scientific matters. Yu. Tkachenko, deals with questions of culture, and I am responsible for propaganda and ideology. However, our organization is extremely democratic, and the profoundly traditional division of responsibilities given above is subject to change.

Between sessions of the Green Council the secretariat of the association carries out all the essential functions. The role of the republic headquarters is primarily to coordinate actions; no one leads anybody in our organization. We help local organizations in each specific case by gaining publicity (if necessary) in the newspapers, by applying lobbying methods in parliament and by using existing contacts in the government, in the Academy of Sciences, etc.

As for me, aside from everything else, I am a member of the editorial board of our newspaper, ZELENYY SVIT. We publish twice a month with a circulation of 10,000. Three thousands rubles of profit, God knows, is not a lot of money, but we manage to stay afloat. We have something of a problem with premises. At present our fax machines and computers are scattered and "kept secret" in private apartments. There is nowhere to put them! Then finances... In general, we have enough money to pay for our immediate programs and to pay for the work of experts, but we are living mainly on contributions from private individuals as well as organizations. We do not collect anything from the "lower-level" organizations, nor do we have membership dues. We earn money from pins and posters. Incidentally, the price of a pin—two rubles—is the only form of dues that we have.

Ukrainian Greens Form Political Party*91UN0064A Kiev PRAVDA UKRAINY in Russian
3 Oct 90 p 2*

[Report by UKRINFORM correspondents A. Belov, Yu. Zabolotnyy: "The Ukraine's 'Greens' Have United in a Party"]

[Text] The first constituent congress of the Ukrainian Green Party (PZU) has been held in Kiev. For three days, 28-30 September, 150 delegates representing active regional organizations of 20 oblasts of the republic discussed and then adopted the PZU Program and Rules. Three alternative drafts of these documents were presented to the congress for consideration.

The idea of the formation of such a party arose back in October 1989 in the most radical wing of the "Green World" Ukrainian environmental association. The formation of a political party, its sponsors say, by no means signifies a split in "Green World," which remains and operates as a broad nonpolitical public association.

The newly formed PZU proclaims itself a party of democratic persuasion that will strive for the achievement of the real state independence of the Ukraine as a full member of the United Nations and the embodiment in practice of the Declaration of State Sovereignty of the Ukraine. In the process of building a state based on the rule of law, the PZU will employ nonviolent methods of political struggle: picketing, mass meetings, demonstrations and strikes.

Its program provides for legislative support for the equality of all forms of ownership, the demonopolization and decentralization of the economy and the privatization of a large part thereof, the creation of a mechanism of protection of the least protected social strata of the population, the elaboration of national and regional programs of land tenure and the revival of free peasant farms. It will strive to assure the rights of the individual in relations with official institutions, protect man against all types of interference in his private life, assist the strengthening of the family, establish the cult of the mother and revive the spirituality of the Ukrainian people, and advocate freedom of religion and the equality of all creeds.

The party sets as its goal recovery and protection of the natural environment and man against the baneful effect of technogenic and other destructive factors, a ban on nuclear power, and the conversion of the Ukraine into a nuclear-free zone. The PZU will participate in the world and European environmental movement.

Structurally, the PZU will be a horizontal-type organization with minimal jurisdiction for the central authorities.

The congress elected the party's directive bodies. The writer Yu.N. Shcherbak, people's deputy of the USSR, is leader of the PZU.

Answering the UKRINFORM correspondents' questions concerning the first steps of the PZU's activity, its leader, Yu.N. Shcherbak, said that these were primarily to organize political clubs of the party in all parts of the Ukraine and determine a specific action strategy. This means that at all levels—from the local soviets through the Ukrainian Soviet Socialist Republic Supreme Soviet—we will present legislative proposals pertaining to an improvement in the ecological situation in various regions of the Ukraine.

We are taking a break in the work of the first constituent congress, and it will reassemble next spring, in Ternopol. And then we will replace the temporary structures with permanent ones and determine the most important directions of the party's activity. As distinct from "Green World," the PZU will involve itself in more than just ecological policy. It has a broader view of itself on the Ukraine's political landscape, that is, it will define its attitude toward all the acute political problems of the present day such as economic and political reform, political development in the Ukraine, the Union treaty and so forth. We will operate as a full-fledged parliamentary-type political party.

During the congress, at the T. Shevchenko memorial in the park, its participants staged the symbolic burial of a model of a nuclear power station and planted a young oak tree.

Impact of Possible Odessa Port Chemical Plant Closure Considered*91WN0047A Kiev RABOCHAYA GAZETA in Russian
5, 6 Oct 90*

[Article by RABOCHAYA GAZETA special correspondent V. Masarik under the rubric "There Are Other Opinions: And What If We Consider Without Emotion: Close the Odessa Port Plant, and Then What?"]

[5 Oct 90, p 2]

[Text] This trip was unusual for me in many ways, most of all because it was a visit to the city where I grew up but where I had not been for 17 years. But also because, it seemed to me, I was going there to save Odessa, to the extent of my powers, from the fatal menace hanging over it in the form of a giant chemical plant.

Not long after, however, I had to go back to Odessa with a companion, A. S. Kostenko, a specialist in industrial ecology, candidate of chemical sciences, and laboratory chief at the UkSSR Academy of Sciences Institute of General and Inorganic Chemistry. In fact, he was given the functions of scientist who had to confirm or refute my own doubts, which had arisen after becoming familiar with the Odessa port plant in detail.

What the Local Press Said

One must perforce refer to the Odessa city press, since it played a very notable if not the main role throughout this

story. It was from its pages that for the first time the Odessa residents learned of the menace which hung over them and their city.

So, 12 years ago a giant chemical plant was built on the shores of the Grigoryevskiy Estuary in circumvention of the law, and disguised under the inoffensive name, Odessa Port Plant imeni Komsomol Ukrainy. Even though it had no real relationship to the Yuzhnyy Port and still does not but is only involved in the production of ammonia, carbamide, and other unclean chemicals which are transferred to foreign ships. The chemicals sail off to the sea and the hard currency earned goes to the center. But the Odessa residents are left with polluted water and air and a deadly threat to the city from the enormous liquid ammonia tanks which, if there was an accident, would flood everything around and turn a lovely resort area into a lifeless empty region.

But even in "peaceful" conditions the plant is alien to the city. Not only does it take away heaven knows how much drinking water, but also it discharges almost as much harmful matter into the atmosphere and sea as the entire city of Odessa. Not to mention the unfortunate residents of Novyye Belyary and Grigoryevki, whom the plant promised to resettle several years ago. Instead of doing that, it began to erect a third carbamide production unit; the sanitary-epidemiological station did stop this in time.

Is it necessary to say that after finding out about all these horrors, the people, led by the newly elected deputies, local "Greens," and Rukh, raised a just struggle against the port plant?

But may I remind you that it was the local press who told about all this, and, unfortunately, what they said did not always correspond to reality, to put it mildly.

Don't Believe Your Eyes

And so, armed with knowledge of the plant courteously offered by the local papers, I went there. I passed by Peresyp, finally, literally stupefied from the heavy breath of the plants built tight-packed along the sea, expecting to see the huge synthesis columns, smoking chimneys, and cleverly arranged structures characteristic of chemical giants advancing on the city. But, let me make it clear right away that the plant is 20 kilometers from the city.

Then finally, there was the giant. Surprisingly unlike any I had seen in Gorlovka, Severodonetsk, or Dneprodzerzhinsk. No suffocating gases, no burned-out land around. Instead, there was the smell of the sea, fresh greenery, and roses. And if I had not known that there was a chemical enterprise over the hill, I would have taken the plant administration building with its flower garden and fountain for a hotel. And if I had not crawled all over the plant later, from the basements to the chimneys as they say, I would have sworn that they had shut it down for my arrival. So there it was: don't believe your eyes. Or your nose either.

But, as they say, you can't put a smell on paper. And the malicious skeptic will certainly sneer and say, "There you are! The insidious department has twisted another simpleton around its little finger!" I will not try to disprove that. I will only say that the plant's chief engineer who accompanied me, A. A. Yelkin, gladly answered all questions, even the most ticklish ones, in detail. And he did not pull me along a special "guest" route; he went where I asked to go.

But ultimately it is not a matter of my "washed out" eyes and incompetent nose. Although it would be strange if I did not believe my own eyes nor the people who, judging from everything, love and know their work. Especially them. For even criminals enjoy (or at least should enjoy) the presumption of innocence. And the plant workers are not criminals. They are rated specialists: more than half the personnel have higher or secondary specialized education. They are the same kind of people that gather for a rally against the plant. They also have the right to work and have families who live three kilometers from the plant in the settlement of Yuzhnyy. Only unlike the people at the rally, they know the whole truth about the plant. So they defend it.

Let Us Look Truth in the Face

So let us try to look truth in the face. Calmly, without extraneous emotion.

I will quote the newspaper: "Beginning as a fairly small enterprise whose activity directly anticipated the needs... of the port of Yuzhnyy, in circumvention of the law, it later became the largest in the sector."

But what particular law are they speaking of? I do not know even one law which prohibits the construction of ammonia plants. And this one was built in accordance with a decree of the USSR Council of Ministers. Arguing about the wisdom of the place chosen for the plant is another matter. But it has already been built. And, its construction was approved by 40 offices, including local ones. So it is at best inaccurate to speak of "illegality."

How can they call the plant the "largest"? Perhaps that gratifies the plant workers, but in reality in terms of numbers of workers and volume of output produced the plant ranks 50th-60th in the sector.

The assertion that Hammer "palmed" this plant off on us, as if we were some banana republic, also sounds strange. The facts speak of something different. The only real Hammer equipment at the plant is the ammonia transshipment unit. The rest was produced in England, Japan, France, the FRG, or the Czecho-Slovak Federal Republic. Besides, there are two such plants in our country and 40 in the United States. And I do not think that the "damned capitalists" built what they do not need. According to data on the world economic market, demand for ammonia and carbamide is high everywhere and will continue to be for another 50-60 years.

The 120,000-ton ammonia storage tanks and the Togliatti-Gorlovka-Odessa ammonia pipeline cause the most concern among Odessa residents. It should be mentioned here that world engineering thought has not yet found a more reliable, safer, or economical way to transport liquified gases than pipelines. The United States, for example, is covered with a network of these pipelines. And we are the only ones who haul them all over the country in railroad tank cars. But a pipeline made of superstrength steel with a diameter of only 30 centimeters is considered completely "foolproof." The entire thing is broken up into five-kilometer sections with shut-off valves. If pressure falls in any section, it automatically switches off. And it is simply impossible to shut down the automatic system.

As for the storage tanks, the chief engineer once had occasion to receive a representative of a big company. The question, what is done at his enterprise if there is an accident, bewildered the guest completely. "Aren't the tanks built according to plan?" he asked. "Yes, they are!" was the answer. "From the wrong materials?" "No, the right ones." "Isn't there any safety equipment?" "There is!" The man could not understand for a long time what was wanted of him and why the tank should explode.

Indeed, why? From an earthquake, the last of which frightened the Odessa residents so much? In fact, the tanks are designed "at face-value" for a 6-point earthquake. But no such strong earthquakes have been observed in the region for the last 200 years. Besides, a 75 percent full storage tank with seven layers of protection and a design like the port's can withstand underground tremors of up to seven or even eight points. But even the destruction of the storage tank (which is nonetheless unlikely) would not bring the city the expected horrible consequences. In the first place, because of its substantial distance and climatic conditions. It has been established that the wind rose in this area is such that the wind blows toward Odessa only 30 days a year. Secondly, if the storage tank was damaged, the ammonia would fall into a kind of basin built around it and then be immediately pumped into a reserve tank. Fears regarding the storage tanks may also be explained by people's extreme ignorance about the actual properties of ammonia. When I was talking with one Odessa resident, I heard: "Ammonia is this kind of plague. As soon as it escapes it quickly flows into every crack, and it forms a cloud above the ground too." This typical error is in my opinion the result of the pipeline accident which occurred near Ufa. But it was not explained to people that that was methane, which is twice as heavy as air. Here it is ammonia, which is almost twice as light. In a free state ammonia moves quickly into the upper layers of the atmosphere and dissolves well in water. Moreover, people, especially city-dwellers, do not know that ammonia is also produced to apply in the ground as fertilizer and has nothing in common with poisonous chemicals (another fundamental error).

As for an accident, that is, the destruction of a storage tank, an entire system of monitoring and accident-prevention measures is in operation at the plant, measures which I will not dwell on—it would be too boring for a nonspecialist. So a storage tank can only be destroyed by special methods. And even that is not easy: a perimeter alarm system prevents anyone from approaching the storage tanks unnoticed without in addition risking falling into the "sights" of the guards. The idea of the ecological danger to Odessa from the plant also concerns people. Let us look the facts in the face here. So, the plant's discharges into the atmosphere have now been reduced by half as compared with those set in the design, in other words, it "smokes" only half as much as its brothers in the United States. And the biological decontamination system set up and organized by the specialist V. I. Marukhnenko, one of only a few in the sector, not only neutralizes the waste water of the plant itself but that of the Chernoye Morye Poultry Factory and the villages of Yuzhnyy and Gvardeyskiy as well. Before the plant appeared, incidentally, their sewage went straight into Grigoryevskiy Estuary, which now is the cleanest of all the estuaries, and even cleaner than the Odessa Gulf itself (this is also a fact). Thanks to the plant. And there is no biological decontamination system like the plant's in Odessa itself, and no one knows when there will be.

And, finally, water consumption of the port plant has been substantially reduced because of the decontamination facilities. Not to mention that the plant built an additional water line, and now many populated points in the oblast have water which they did not have before and would not have had even now.

[6 Oct 90, p 2]

[Text]

What Does Science Say?

Science was actively included in the decision on the plant's fate. Two "independent" commissions already worked there. I put that word in quotation marks because even a nonspecialist could see the tendentiousness and lack of objectivity in their approaches. A considerable number of objective facts received completely opposite interpretations which were not in keeping with reality, and some members of the commission issued their conclusions without even seeing the object of study. So the truth is yet to be established.

I must say that it was not an accident that he became my companion. After my first visit to the plant, I returned to the editorial office in some confusion, to be honest: I had gone to follow the example of the others and rant and rave at the poisoners of dear Odessa, but I arrived and was surprised to find that this ranting and raving would be misdirected. But I am not a specialist. Were my impressions perhaps wrong? That was when the idea was born in the editorial office to invite a scientist-specialist from the UkSSR Academy of Sciences to go there. A

specialist in industrial ecology who heads the UkSSR Academy of Sciences Institute of General and Inorganic Chemistry laboratory, A. S. Kostenko, agreed to help figure out this extremely complex matter. After studying the plant itself and all the technical specifications, he came to the following three main conclusions:

1. The enterprise meets world(!) standards of chemical technology.
2. Assuming trouble-free operation and observance of the norms of technological regimes, the enterprise meets the normative PDK [maximum permissible concentration] of harmful substances in the waste water and the air of the work and sanitary zones.
3. A program of organizational-technical measures to reduce the main and supplemental risk factors must be carried out.

Then follows a list of desirable steps which are interesting and important mostly to specialists and which I would characterize by saying "nothing is ever perfect." I will dwell on only one, in my opinion fundamental, observation by the scientist concerning a possible risk factor. He formulates it as "reduced sociopolitical stability in a society which is fraught with deteriorating work performance and technological discipline and the possibility of acts of sabotage."

Well, sabotage is special case. I will talk about something else—the social climate in which the plant exists. You must agree that the nervous atmosphere surrounding the port plant can in no way promote the mental tranquility of its workers and personnel. What person would white-wash his house if people were threatening to tear it down? Don't the people of Odessa understand that with the hysteria that has been raised about the plant, they are cutting off the branch they are sitting on?

Later, in Kiev, Aleksandr Semenovich summed up our joint work and expressed an idea which confirms my own notions exactly.

"The Odessa port plant is an enterprise which is unique in our country in terms of the sophistication of production and degree of safety. Believe me, I have seen really terrible plants in all respects. But the actions against the port plant have nothing to do with either technical safety or ecology. It is an obvious political campaign."

I cannot help but agree with the scientist's statement. Tell me why such an all-out campaign has been waged against the port plant when it is nothing compared with all the really critical problems in Odessa itself? Is it really the fault of the port plant that the entire city's sewage ended up in the sea after an ordinary hard rain and Odessa beaches were again closed? Is it the one that is contaminating the city water supply? Did the port plant build the toxic necklace of rundown plants along the Peresyp which are contaminating the Gulf with the entire periodic table of elements? Is it perhaps the port plant that is not building housing for Odessa's citizens?

It is true that the plant is accused of not keeping its promise to resettle the people of Grigoryevki and Novyy Belyar. Yes, in fact the inhabitants have not been resettled. But then why aren't the real reasons given? Among which, we will note, is the following: the inhabitants' refusal to move. And why was it not explained to people that money for new buildings for the people to be resettled was appropriated long ago? Only no one wants to take it: construction organizations do not count new housing to replace housing torn down in their plan, and it is not profitable for them to build. But what does that have to do with the plant?

There are many complaints that Odessa is a resort area and the plant takes up territory. But then why doesn't anyone glance at the tens of kilometers of coastline that are occupied by organizations that have nothing to do with resorts at all?

A lot of commotion occurred just recently about the volley-like discharge of ammonia, which could be smelled in the populated points closest to the plant. But these are the facts: while a foreign ship was being loaded, an executive officer who was a little tipsy failed to close the safety valves and the ammonia being loaded began to escape into the atmosphere. However, the shore service did not notice the leak in time. But this is all terribly simple: the dock walls and dock workers working there belong to Yuzhnyy port, while the loading system belongs to the port plant. Now wouldn't it be logical to hand the fairly complex operation of loading over to real specialists, that is, to the port plant? And hold them responsible if there is an accident situation? As for the discharge mentioned above, the firm which owned the ship paid a fine of 100,000 dollars which went to buy an accident-prevention system. But is it logical to close the plant on the basis of this case or even ones like it? So, based on this logic, if a drunk driver hit a pedestrian should the bus plant be closed?

What Do We Lose? What Do We Find?

Nonetheless a session of the city soviet adopted a decision to close the Odessa port plant. The voice of the people! But all the same allow me to cast my vote. As it seems to me personally, the deputies, like all the people of Odessa, were the victims of not always true and accurate information on the port plant and gave in to their emotions. Nor do I rule out the influence of those who on principle of not losing their popularity among the masses voted to close it. But that is their business. Something else interests me: let us make just a very superficial analysis of what we get and what we lose with the port plant's closing.

I will begin with what we will get. I will say honestly that I do not know. Perhaps peace of mind for the people of Odessa, which is important in itself. But if one takes into account that their fears are unjustified and artificially caused, then the question disappears of itself.

Now what do we lose? And we lose a great deal here. Especially now, when we are speaking of the republic's

economic independence and all the income which the plant provides could go for your and my needs.

Now about money. If the plant is closed, we lose on the order of 93 million rubles and 65.7 million in hard currency. Of that Odessa will come up 6 million rubles short in its budget. One of the deputies of the city soviet observed correctly that the deductions payment from the port plant alone would allow Odessa to resolve, at last, the problem of decontamination facilities. But the losses have already begun: because of the, in my opinion, unjustified suspension of construction of the third unit to produce carbamide (which in terms of chemical content is no different than ordinary urine, but in dry form), foreign equipment worth 17 million first-category foreign currency rubles has not been installed. Not to mention the output which has not been produced. I would like to know who will compensate the republic for these losses. I am not considering the plant's outright, so to speak unrecorded, dollar transfers for the city's needs, which today are already in the hundreds of thousands. I would like to ask the authorities where they are going.

Next there are losses of a different nature. Ammonia means refrigerators. It means fertilizer, that is, very real products. Closing the plant is depriving 3,000 workers of jobs and the 15,000 members of their families of the means of existence. In addition, approximately 80 percent of the original cost, which was 624 million rubles, will go to take down the equipment. And there is no need to console oneself with illusions about redesigning the plant for another use. Any specialist (exactly, a specialist, not a politician) will say that chemical plants in general cannot be converted; they are too specialized. And the conversion costs an enormous amount of money too. Do we have it?

And, finally, there is a danger of losses of an altogether different type, whose consequences are unpredictable. Upon finding out about the row raised here, our Russian colleagues from Togliatti, for whom the ammonia pipeline is a means to earn hard currency, clearly hinted to the director of the port plant that if the ammonia pipeline was closed, interruptions in the supply of oil to the Ukraine would be possible. So who will assume the real responsibility for the consequences of this course of events? Wouldn't it be better to hold negotiations on proportional participation in currency receipts from the functioning of the pipeline? Especially since that would be fair. And it would provide the opportunity to allocate additional money to build decontamination facilities for Odessa and other measures to clean up the resort city.

But even that is not all. Chemical enterprises which pollute the environment will undoubtedly be closed. Especially those which operate with ancient equipment which is dangerous in an emergency. Gorlovka is first in line. And then we certainly may be left without money, ammonia, or carbamide. So, are we supposed to buy abroad what we ourselves once produced? Or trade raw materials; and by the way, our republic has almost none.

One can say a great deal more about the port plant and cite more and more facts which would surprise Odessa people quite a bit, in my opinion. But I have no illusions that I can use one article to assuage unjustified fears which have been diligently and purposefully fanned for almost two years. It is for that reason that I believe that the issue raised before the deputies of the city soviet, of a city referendum on the port plant's continued existence, is a link in the same chain. For in this situation its result is decided in advance. And that is what the authors of the idea need. As for an international expert commission, it really needs to be convened. Once again, in order to use it to soberly look at truth in the face. I just don't want us to become a laughingstock in the eyes of foreign specialists with our desire to close a plant unequaled in our country. But that's fine, it won't be the first time.

I understand that I have expressed an unpopular point of view in this article. To follow the example of the rest and demand that the plant be "suspended" or "closed" is much simpler and attractive to the public. But, believe me, my position emerged under the pressure of facts and was strengthened after the specialist-scientist that we invited came to those same conclusions. I do not expect much, but perhaps this article will all the same awaken someone to soberly and calmly look at things and then move from destructive to constructive decisions.

North Ossetia Subsurface Water Contaminated by Kerosene

*LD0211103590 Moscow Domestic Service in Russian
0700 GMT 2 Nov 90*

[Text] The emergency commission set up in North Ossetia after the discovery of the poisoning of subsurface water with kerosene in Mozdok Rayon, is continuing to assess the scale of the disaster. A lake of over 20 square kilometers has formed beneath the soil. In its water, the maximum permissible norms for kerosene concentration have been exceeded by hundreds of times. What is being pumped out of the ground is essentially fuel. The kerosene is continuing to seep through the subsoil, is entering the Terek, and is moving toward the Caspian. The republican health authorities have concluded that well water cannot be used for drinking and household purposes.

In 1991, water for Mozdok and the adjacent settlements will have to be obtained from the watertable at a depth of up to 400 meters. Before then, it will be necessary to switch over to an emergency supply of surrounding settlements with drinking water. The full picture of the subsurface water pollution with petroleum products has yet to be ascertained.

Armenian Nuclear Station Will Not Be Reactivated

*NC3110135190 Yerevan Domestic Service in Armenian
0400 GMT 31 Oct 90*

[Excerpt] Will the nuclear power station resume operations? An ARMENPRES correspondent asked Vanik

Nersesyan, chief engineer of the Armenian Nuclear Power Station, this question in order to dispel the suspicion held by some sections of the population that the nuclear power station will probably be reactivated during the winter to resolve the energy shortage.

Nersesyan said: There are no sufficient grounds for that. To begin with, one of the reactors cannot even be reactivated because some of its parts have already been removed and used for research. No such difficulties exist with the second reactor, but it cannot be reactivated on time because at least six months are needed to get it ready for such an operation, and then only if the financial and material allocations are made under improbably ideal conditions.

Yet another factor: Even if the power supply in the republic is substantially increased, it will not substantially substitute natural gas in the heating system because the cable industry has not readied itself for such an eventuality and the power transmission system could easily be disrupted. Regular gas supply is the only means to provide heating during the approaching winter. However, if we are talking about the future development of the power in Armenia, nuclear power is still the best option. Such a project could be implemented by building new and safe power stations which would not damage the environment during an accident as happened in the United States. [passage omitted]

Ecological Situation in Ust-Kamenogorsk Reviewed

*LD1111195690 Moscow Television Service in Russian
1530 GMT 11 Nov 90*

[From the "Vremya" newscast]

[Text] The extremely grave ecological situation that has developed in Ust-Kamenogorsk has been exacerbated by a series of faults and accidents which have occurred lately at metallurgical enterprises in direct proximity to residential areas. The official indifference of the Ministry of Metallurgy and Ministry of Atomic Power, impassively surveying all this from their departmental heights, can, on the other hand, quite justifiably be seen as a previously planned push toward a disaster.

[A. Laptev, identified by screen caption] A planned disaster. There is no other name for the ecological situation that has developed in the city. Take a look at this mighty palisade of factory chimneys, these toxic plumes of smoke heading straight for kindergartens, schools, and citizens' housing. The railway workers are refusing to service freight from the lead and zinc combine and the (?Rybinskiy) Metallurgical Works, the city's main polluters. And the recent blast at the beryllium plant, when a super-toxic metal compound causing irrevocable destructive processes in the human organism, floated over the city, reaching saturation levels in certain areas and over 100 times the maximum acceptable

concentration. As the people of Ust-Kamenogorsk dismally predict, it is now the turn of the enriched uranium which is also produced here, within the city limits.

A problem of problems requiring an immediate and effective solution. Nursultan Nazarbayev, the president of the republic, has just been in Ust-Kamenogorsk. His meetings with work collectives, the city's people, the leaders of informal associations, people's deputies, and his acquaintance with the infrastructure of Ust-Kamenogorsk and the daily life of its citizens will, I think, greatly help the president to grasp the essence of the problems here.

Nursultan Abishevich, the demand put forward at the general city meeting, and supported by the body of oblast deputies, on making the oblast an ecological disaster zone, has been rejected by the Supreme Soviet of the Kazakh Republic. The situation now is fairly tense, with strike committees being set up.

[Nazarbayev] The people understand things correctly, and I am right behind them over their fears about the existing ecological situation. They are quite rightly raising all these questions. There are no instructions about the beryllium plant, the seven kilometer zone is not being observed, and so on. Add to these extensive effluents, and the status of an ecological disaster zone has not been defined. What is it? What should follow from this? Does it mean coefficients or some kind of food benefits, or something else? This is being dealt with by the USSR Supreme Soviet, and at our request comrade Salykov, chairman of the Committee for Ecology of the Supreme Soviet, and other specialists came here on a visit. The USSR Supreme Soviet is to examine and establish a status. When this status appears then we will need to have a debate. [video shows views of city, chimneys pumping out smoke, children playing, Nazarbayev meeting workers, speaking to auditorium and to correspondent]

Ecology Committee Chairman Salykov on Aral Sea Situation

*91WN0029A Moscow SOVETSKAYA KULTURA
in Russian No 37, 15 Sep 90 p 3*

[Interview with Kakimbek Salykovich Salykov, chairman of the USSR Supreme Soviet Committee for Issues of Ecology and Effective Utilization of Natural Resources, by Vilor Niyazmatov, Uzbek SSR people's deputy: "The Sea Is Going"; date, place not specified]

[Text] [Correspondent] Kakimbek Salykovich, the editors receive many letters in which the readers show particular alarm over the fate of the Aral Sea, the fate of those who live in this region. I would like to discuss with you the issues that concern them.

[Salykov] The situation in the Aral Sea region has gone practically beyond man's control. For the first time in the history of mankind, an entire sea is disappearing as a geographic feature. The Aral region has become an

ecological disaster area. According to Goskomgridromet [State Committee for Hydrometeorology] data, by comparison to 1961, in 1989 the water level had fallen by over 14 meters; the sea area has been reduced by one-third, and the total volume of water by 60 percent. The water salinity has increased many fold. The fish have completely perished.

Up to 100 million metric tons of salt-dust waste are discharged from the dried sea bed; it is distributed over hundreds of kilometers. The climate of the Aral region is taking a serious turn for the worse. The absolute maximum daytime high temperature in summer is approaching 47 degrees Celsius, and in winter, as low as minus 17 degrees Celsius.

The sea is drying up quite intensively today. It sometimes happens that when there is a storm, the sky is covered with a solid black cloud, and there falls on the streets of cities such as Nukus, for example, a snow of sandy-salt grit. Acid rain falls, often as the rice and other grains are blossoming. Orchards and vineyards die; buildings and structures are ruined. The area of woods is being reduced by over 200 fold.

The Aral Sea is rapidly disappearing; in certain places the distance from the water to the old shoreline is 100 kilometers. The ground water level is lowered with the distancing of the sea; not only have lakes and rivers been reduced, but springs and nearby sources of underground water have disappeared.

All of this is accompanied by an expansion of the zone under the influence of intensive desertification. This is the reality of life: We lag with our measures, and nature takes its vengeance for her mistreatment, for the lagging expertise and the very poor ecological ethics of the people who stood at the helm of the economy, particularly during the time of stagnation.

The sanitation-epidemiological situation in the region has become most unfavorable; the health of the people is deteriorating. A general clinical review in the Karakalpak area showed that over 60 percent of the population requires immediate treatment.

According to the findings of the most recent medical examinations, infant mortality per 1,000 live births is 51.9; this figure nationwide is 22.2. This is the truth. It is pitiful, demanding the same attention to the problems of the Aral Sea as has been paid the Chernobyl disaster.

[Correspondent] In the Karakalpak ASSR they were the first to finish the medical investigation of the entire population. What did this indicate?

[Salykov] Deviations in the state of people's health were manifested in almost 70 percent of the adult population, and in over 60 percent of the juvenile population... People are drinking bad water, there is a lack of sewerage, and population points lack amenities. Only 18

percent of the rural population uses piped water, and the remainder is forced to use water from open bodies of water and wells.

[Correspondent] We make frequent use of the concept the "Aral area." What territory does this encompass?

[Salykov] The Karakalpak ASSR and Kazakhstan's Kyzyl-Orda Oblast can be considered the center, but the overall territory is vast and expanding. Khorezm and Tashauz oblasts, as well as the three rayons of Uzbekistan's Bukhara Oblast should be considered the Aral area; in addition, three rayons of Kazakhstan's Aktyubinsk Oblast are demanding that their territorial status be included in the Aral area. I think that this demand is justified.

[Correspondent] The CPSU Central Committee and the country's Government have adopted a number of resolutions in recent years. It is that they have not yielded the needed effect?

[Salykov] Indeed, there was adopted in 1986 the CPSU Central Committee and USSR Council of Ministers resolution "On measures for accelerating the economic and social development of the Karakalpak ASSR." This document came into being at the insistence of the Karakalpak obkom, and with the support of M.S. Gorbachev. We managed for the first time to tear away the curtain of shameful silence about the Aral catastrophe and tell the whole truth to the country.

Through this resolution, the attention of Moscow and Tashkent were most seriously turned toward the Karakalpak area. During those years, many of those guilty of the loss of the sea were still in their chairs, and their protectors were also still strong, and most importantly, there still presided the departmental dictatorship of Minvodkhov [USSR Ministry of Water Resources Construction], which financed, built, and accepted structures all by itself.

I recall a meeting with N. Vasilyev, then USSR minister of land reclamation and water resources. We handed him a list of the major unfinished projects at the assimilated facilities and sovkhozes, under construction for up to 20 years, and even pointed out the facilities that existed on paper but not in reality. The minister promised to take measures, to help, and then complained to the Uzbek CP Central Committee, where former first secretary I.B. Usmankhodzhaev gave me a full lecturing, at first over the telephone, and then "discussed" me at the Central Committee buro. The Central Committee buro members of that company are all hale and hardy, and won't let you get a word in edgewise. Departmental dictatorship and the monopoly of Minvodkhov are exercised through allocations for capital construction. The minister was frightened that they would release less, and that was it. That is the kind of "levers" in operation.

We took the first steps toward saving the sea in the resolution I cited. I say that because the fundamental portion of the resolution was aimed at how to save

people's lives. In fact, this was the very "first aid" for the people of the Karakalpak area. I will say openly that the resolution of a number of problems was dragged out. The Tuyamuinskoye farm of treatment facilities with water pipes to Nukus has practically been built, but with a year's delay. With a two-year delay, the construction of the Takhiyatashkiy water treatment and water collection facilities. The construction of the Kaparasskiy hydro-hub as the receiving point for clean flood waters for drinking water collection is lagging. Even in 1990 we have shown this facility to representatives of the union and republic government. They are convinced of the work's failure, and, as they say, fundamental measures must be taken. Otherwise it will turn out that we will do a great job in providing water to the population of the Karakalpak ASSR and Khorezm Oblast, but we will supply them with water containing pesticides and other chemicals discharged into the river by the southern oblasts by those who live near the headwaters.

To put it concisely, the measures taken are being implemented poorly. But it was difficult to expect better, since the lack of feasibility was even built into this resolution of the USSR Government. There were no actual forces and resources. For several years, funds were solicited from Moscow departments on the basis of the notorious "share participation."

[Correspondent] A gloomy picture, but what way out is there; what is your committee proposing?

[Salykov] On 10 May 1990, our committee requested of the USSR Supreme Soviet that the problems associated with the desiccation of the Aral Sea be considered at the upcoming session of the USSR Supreme Soviet by way of monitoring the progress of the decisions made previously by the central organs.

The 27 November 1989 USSR Supreme Soviet decree ordered a Government commission, in conjunction with the USSR Academy of Sciences, and the involvement of foreign scientists and specialists provide for the development on a competitive basis of an idea to restore the Aral Sea. It started on this only in 1990. Valuable time was lost. The fundamental measures have been threatened with disruption.

The "Aral" All-Union Scientific Coordinating Center is operating in Moscow. The Aral center for the region's ecological problems has been created in Nukus. A summation of all the work conducted is planned in Nukus in September, with foreign scientists invited.

[Correspondent] Don't we count too much on the power of the magic "center" in problem solving? How are they working on the issues of saving the Aral Sea in the provinces?

[Salykov] I am not an advocate of the "center's" single-version, arbitrary solutions. Nevertheless, the Aral catastrophe is not just the concern of those living in the region. It is necessary to involve the entire Union, all the minds of the planet. After all, it is a general tragedy.

To be fair, it must be said that the local leaders have become more concerned with Aral matters lately. For example, I appreciated the fact that the Aral Sea's problems were included among other important issues touched upon at a recent regional meeting of the leaders of the republics of Central Asia and Kazakhstan. I will say something else all the same: First of all, accurate information must be received.

The Aral Sea cannot be saved by the previous methods and decisions; we must work jointly. I would propose the creation of an intergovernmental coordinating council for Aral Sea problems for the republics of Central Asia and Kazakhstan.

[Correspondent] You speak of expertise in the approach to the problem of the Aral region. Please tell us, what is it you have in mind?

[Salykov] Many of our problems resulted from the low level of engineering expertise, a poor understanding of ecological ethics. And it must also be added that legal norms on conservation matters have not been operational in the country.

There must be full reliance upon science, rather than blind following of the dictatorship of the "masters" of the branches that to this day reiterate what the leaders of the era of stagnation promised. No one should dictate his "panacea" version; only collectively, through competitive selection can we find an idea for saving the sea and through Government decisions start concrete projects, and then go directly to the work.

[Correspondent] In general, is there hope for saving the Aral Sea?

[Salykov] There is hope for saving the Aral Sea. And however deeply I think about the problems of the Aral Sea, I am more and more inclined to come to the conclusion that the solution to this crisis-level problem should possibly be divided into two phases. The first of these is the preservation of the sea as a geographic entity at least within the current parameters. This requires 25-30 cubic kilometers of water annually. I consider it important to move up the deadlines for giving the Aral Sea 21 cubic kilometers of water, previously planned for the year 2005. I believe that new approaches and the competition-based results of the search for an idea for saving the sea will find internal resources for the needs of this phase, not only for a volume of 21 cubic kilometers, but for the entire 25-30 cubic kilometers of water.

The second phase is the restoration of the sea to the 1960's level. This requires 60 cubic kilometers of water. This is a complex issue, but it must be solved. During this phase, the serious inclusion of external sources will be required, and scientists will say what these sources will be (though we have more than a few proposals on how to save the Aral Sea). We must take the most sensible solutions, ones that do not once again despoil nature somewhere else.

We have appealed to a UN organization entitled UNEP [United Nations Environment Program]. The UNEP leadership has agreed to include the problem of the Aral Sea in its program. For now, we have in hand the UNEP draft project of the program for assisting the USSR Government in developing an idea for saving the Aral Sea. We expect the arrival of its experts in mid-September. In late September-early October of this year, an international symposium on this problem will be held in Nukus.

From the editors:

The problems of the Aral Sea are not only ecological problems. They are also moral and spiritual problems. By saving the Aral Sea, we will save first and foremost all life in this land. In consideration of this, the newspaper SOVETSKAYA KULTURA is undertaking the monitoring of the existing situation and developing a publication program under the heading "The Aral Sea." To implement this program, we invite the participation of our readers—scientists, writers, journalists, and cultural figures. In a word, anyone not indifferent to the pain of the Aral Sea.

Attempt To Find Resistant Flora To Rehabilitate Aral Sea Zone

LD0511142590 Moscow TASS in English 1408 GMT
5 Nov 90

[By TASS Correspondent Vladimir Gandzh]

[Text] The Kazakh Academy of Sciences has set up a new botanical garden in the Aral ecological disaster zone, created by the rapid shrinking of the Aral Sea. The first heat, drought and salt resistant trees, bushes and grasses were planted there this autumn. Those that withstand the local conditions will be used to ameliorate the former sea bed.

This is being done to eliminate sand and salt storms originating on the dried up Aral sea bed. Specialists have estimated that each storm carries up to 75 million tonnes of sand, dusts and salt over distances ranging from 400 to 500 kilometers. This causes much damage to major agricultural oases in Kazakhstan and Uzbekistan.

The new academic botanical garden was set up in keeping with the special decision of the Soviet government to improve the ecological situation in the Aral Sea region. The document envisages the planting of various trees and bushes on an area of over one million hectares of desert land, which appeared in the dried up areas.

The feasibility of this difficult project is proved by the fact that large areas of the Aral sea bed are already covered by Sakshivujlan [as received], an indigenous species found in Kazakh deserts. Saksaul seeds, it is believed, were blown there by winds from Saksaul forests in the Kazakh desert of Kyzyl-Kum and the Aral desert of Kara-Kum.

Gorno-Altay Oblast To Form 'Ecological Economic Zone'

PM0111102590 Moscow IZVESTIYA in Russian
31 Oct 90 Union Edition p 2

[Report by IZVESTIYA correspondent Margarita Kurgalina under "Direct Line" rubric: "Gornyy Altay Decides Its Future"]

[Text] Barnaul—A session of Gorno-Altay Oblast Soviet of People's Deputies has adopted a declaration on forming an autonomous republic on its territory, along with a decision to create an ecological economic zone within it, the first of ten planned in the RSFSR [Russian Soviet Federated Socialist Republic].

An international seminar was held immediately after this in Gorno-Altaysk to discuss general problems relating to the zone. The conference, in which Soviet and foreign specialists took part, naturally provided publicity and information. Foreigners will subsequently take part in setting up a consultative firm whose aim is to create a normative base for the ecological economic zone and attract foreign investors. The intention is to set up enterprises that use environmentally friendly medicinal plants for new-type medicine and to develop tourism.

Geology Ministry Blamed for High Radioactivity in Aldan Kray Village

LD3110201890 Moscow Domestic Service in Russian
1500 GMT 31 Oct 90

[Text] The Aldan Rayon Executive Committee, Yakutiya, has decided to introduce legal action in the amount of 1.5 million rubles against the USSR Ministry of Geology. The thing is that the ministry's specialized expedition stayed for some years in a village in the northern part of the kray. And now scientists from the Yakutsk Biology Institute have discovered areas with a high degree of radioactivity here. A working commission is to arrive in the region in the near future to inspect specific settlements thoroughly. But it is already clear that the ministry will have to pay for the negligence of its staff.

EUROPEAN AFFAIRS

Nordic Countries Cooperating To Restore Waters

90WN0284A Helsinki HELSINGIN SANOMAT
in Finnish 16 Aug 90 p 2

[Guest commentary by Dr. of Agriculture and Forest Sciences Hannele Nyroos, who is employed as acting chief inspector in the Environment Ministry: "Nordic Countries Fighting To Save Their Waters"—first paragraph is HELSINGIN SANOMAT introduction]

[Text] Local communities, industry, and agriculture are the biggest polluters of our rivers, lakes, and seas. Chemicals are the most dangerous pollutants. Not all of the hazardous chemicals are even known. The volume of nitrogen and phosphorus should be considerably reduced in waste water to prevent eutrophication of the Baltic.

Protection of its waters was begun in our country in the 1960's. During the following decades, purification plants were speedily built for the treatment of waste water.

The purification of waste water continued to be improved on in the 1980's, and water protection was made more effective in other ways, too. The condition of the water has not, however, improved in the way it was expected to. New sources of substances that put a strain on the waters have arisen, and the old sources have increased in volume.

The effects of pollutants from increasingly more remote areas are being felt in our waters. Of great importance are those pollutants that reach us through the air and from other Baltic countries.

Our own efforts alone are not enough to improve the condition of the water; improvement of the condition of our waters and the Baltic is of common concern to the Nordic countries. These countries have jointly and individually drawn up programs for lowering the concentration of pollutants to improve the condition of the water.

A few years ago, a Nordic Council of Ministers water committee estimated that the Nordic countries will have spent a total of 30 billion markkas on water protection by 1995.

Baltic Eutrophication Has Increased

The volume of nitrogen entering the Baltic from the land has increased to five times the natural level, and the volume of phosphorus to 10 times as much.

The biggest sources of pollution are local communities, industry, and agriculture. The volume of airborne pollutants is also appreciable.

Researchers have observed signs of eutrophication in the living organisms of the Baltic for a long time now. An indication of how serious the situation is was obtained in early summer of 1988, when Chrysochromuline algae destroyed nearly all living organisms in a layer of water

at a depth of 20 meters over an area of 75,000 square kilometers along the northern coast of the Danish straits. Despite the fact that eutrophication was known to be increasing, they were not prepared for a catastrophe of this magnitude.

Blue algae florescence has also clearly increased in the Gulf of Finland, particularly in the eastern part of the Gulf. Half of the blue algae flower clusters are toxic. Researchers warn us of the possibility of massive concentrations of algae in this area, as well.

Goal in Sweden Is To Cut Coastal Community Nitrogen Discharges in Half

Recent studies clearly show that both nitrogen and phosphorus compounds have an effect on the eutrophication of the Baltic.

In terms of Finland's water protection policy, phosphorus used to be considered to be more important as a cause of eutrophication than nitrogen.

We are among the first countries in the world when it comes to purging local communities' waste water of phosphorus and organic compounds.

According to the program of objectives for protecting our waters approved by the Council of State in 1988, we must also be prepared to remove nitrogen from waste water. A study is at present being conducted to determine in which areas there is a need for removing nitrogen. At the same time, treatment methods are also being studied.

The need for removing nitrogen is also emphasized in Sweden's new sea protection program. The goal is to cut nitrogen discharges in some inland areas and at all coastal community treatment plants to half of what they were.

They plan to reduce the volume of nitrogen by as much as 80 percent by 1992 in certain areas prone to eutrophication.

The goal of the water protection program approved by the Danish Folketing in 1987 is to reduce the total volume of nitrogen entering their waters to half the 1987 volume by the end of 1992 and the total volume of phosphorus by as much as 80 percent.

The eutrophying effect agriculture has on waterways is considerable in all the Nordic countries. In Finland, agriculture is the single biggest source of nutrient volume.

According to the water protection objectives program, by 1995 agricultural pollution should be cut to half of what it was earlier. Discharges into the waters produced by livestock will have to be stopped entirely, which is possible by building cisterns that are big enough to hold livestock urine and manure. Livestock residue should be spread on the fields only when the ground is not frozen.

The use of fertilizers must be cut because, according to the studies, a third too many phosphorus fertilizers are used in Finland. Leaving protective zones along the banks of waterways would reduce the runoff of nutrients from the fields into the waters. Nutrient runoff would also be reduced if fields were allowed to lie fallow in winter.

The Swedish sea protection program contains a recommendation that 60 percent of the fields in the heavily cultivated areas of southern Sweden should be farmed in winter.

Officials cannot reduce agricultural pollution as effectively as they can waste water pollution. Agricultural pollution comes from several different sources, and the effects of an individual pollutant can very often not be distinguished from the effects produced by other things. Because there are many sources of pollution, it is not easy to monitor them, either.

Slowly Disintegrating Toxins Are Most Dangerous Ones

According to the program of objectives to protect the waters, we here ought to work on improving our laws so that these sources of pollution may also be more effectively reduced than they are now. The reduction of agricultural pollution is a problem in all the Nordic countries.

Last spring, for example, the Danish Government drafted a report that revealed how well the water protection objectives it set itself in 1987 had been achieved. They had lagged seriously behind in achieving the objectives set for agriculture. The Danish Government appointed a committee to determine what had to be done to achieve the planned objectives.

The number of chemicals that are getting into the environment is constantly growing. At the present time, there is a total of 100,000 chemicals used in industry in our country, and hundreds of new compounds appear on the market every year.

Most damaging from the standpoint of the environment are the slowly disintegrating substances that become concentrated in living organisms, just as are those substances that produce immediate toxic effects. These are, among others, long-lasting organic compounds, heavy metals, and metallo-organic compounds.

Metal concentrations in the open sea areas of the Baltic have remained relatively low. However, concentrations in sediment have increased to 10 times the natural background concentrations.

Use of Dioxin Should Be Stopped Altogether

The dangers concealed in the use of PCB and DDT compounds, which accumulate in living organisms, were realized in the late 1970's. Baltic seal reproduction was interfered with as a result of the use of environmental toxins like PCB.

Only 25 percent of female seals were able to give birth to live pups, whereas the corresponding percentage used to be from 80 to 90 percent.

DDT very nearly caused the extinction of the Baltic eagle. Fortunately, the population is now recovering.

PCB and DDT concentrations in the Baltic have been lowered because bans and restrictions have been placed on their use.

We want to considerably reduce the organic chlorine content of forest industry waste water because some of these compounds concentrate heavily in living organisms.

In 1989 the Nordic countries agreed to reduce the volume of organic chlorine compounds contained in bleached cellulose waste water so that it would amount to no more than a third of the 1987 volume.

Pollution by toxic dioxin should be stopped altogether. Whereas the use of chemicals now known to be hazardous is restricted, researchers fear that what we know about represents only the tip of the iceberg of all hazardous substances.

There should be sufficiently accurate preliminary studies of the effects of chemicals before they are adopted for use. The use of chemicals should be drastically reduced. Compounds that prove to be hazardous should be replaced with compounds less harmful to the environment.

Germany Plans Environmental Data Base of Satellite Photos

90WN0305A Frankfurt/Main FRANKFURTER ZEITUNG/BLICK DURCH DIE WIRTSCHAFT in German 10 Sep 90 p 10

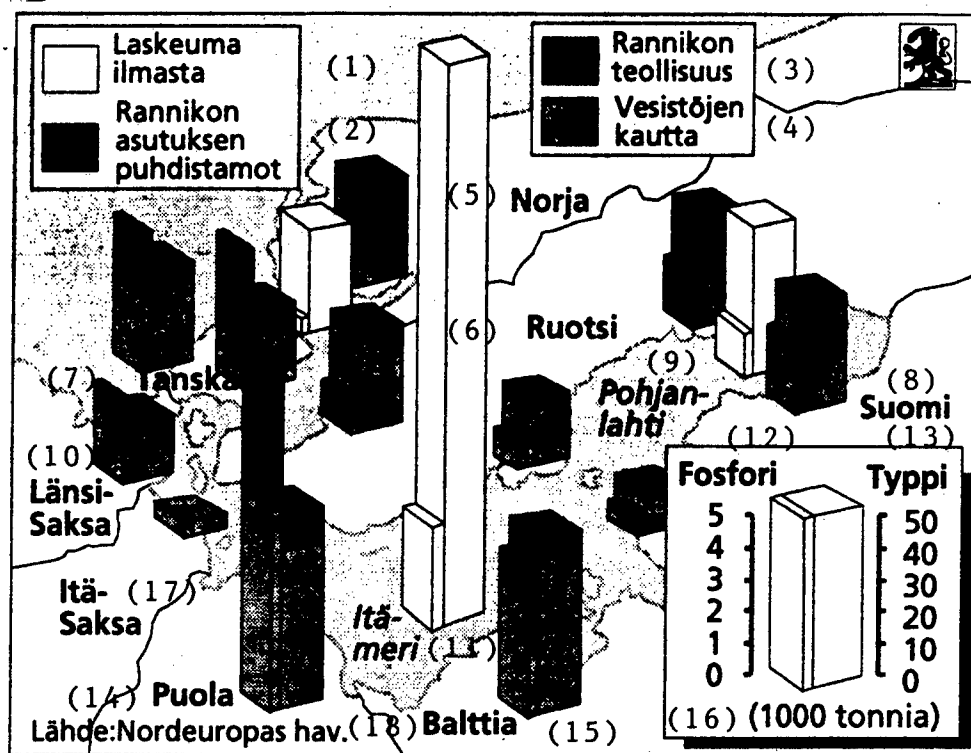
[Article by re: "The German Research Institute for Aeronautics and Space Flight Establishes an 'Environmental Data Base'"]

[Text] Concern about potential massive global climate changes is growing—and with it the necessity of taking concrete action. However, carefully directed measures must be based on information and knowledge about the complex interrelationships of the climatic process. For this purpose the German Research Institute for Aeronautics and Space Travel (DLR) is preparing to establish a satellite image environmental data base. This facility is to prepare data from remote sensing satellites and make them available to the most varied users.

One of these satellites, which is to be started in 1991, is expected to yield a wealth of data: ERS-1 (European Remote-Sensing Satellite). The European "environmental satellite" is thus—in addition to satellites such as the NOAA—held to be the most important "informant" for the future DLR data base, which is attached to the German Remote Sensing Data Center (abbreviated as DFD) of the DLR in Oberpfaffenhofen.

One of the thematic focal points of the ERS-1—in addition to observing the oceans and studying the tropical rain forest—is measuring Antarctica. A ground station will receive the satellite data there and forward them to the DLR. Here they are prepared, stored and made available for use in a so-called Processing and Archiving Facility. At the moment the Antarctic station is being built at DLR in Oberpfaffenhofen and will be subjected to the final system tests.

The ERS-1 works on a radar basis: With an entire "package" of microwave sensors on board, it is designed to measure environmental parameters and for geodetic studies. The satellite will be able to identify icebergs and even individual ice floes, as well analyze the age, composition and dynamics of the ice in the Antarctic glacier. This will, for the first time, yield systematically and empirically gathered information, which will help, for example, in providing an answer to the question of



Key:

1. Airborne pollutants
2. Coastal settlement treatment plants
3. Coastal industry
4. Via waterways
5. Norway
6. Sweden
7. Denmark
8. Finland
9. Gulf of Bothnia
10. West Germany
11. The Baltic
12. Phosphorus
13. Nitrogen
14. Poland
15. Baltic countries
16. (1,000 tons)
17. East Germany
18. Source: NORDEUROPAS HAV.

whether and to what extent the greenhouse effect results in a warming of the world's oceans and a melting of the polar ice. Because of this it would be possible to put the forecasting models, which until now were made on the basis of incomplete measurement data from catastrophic scenarios, on a more solid data base.

Charting the ice cover will take place by means of an imaging active SAR (Synthetic Aperture Radar), which is capable of delivering images with a resolution of 30 by 30 meters, for which the altitude of the ERS-1 will be not quite 800 kilometers. An imaging radiometer (ATSR) will also deliver data about the surface temperatures of the oceans. The height and direction of the expansion of ocean waves will be derived from scatterometer and altimeter measurements. Also, the ERS-1 will be able to "see" into the depth and measure ocean currents. These data will both serve marine navigation and provide more precise interpretation of climatological phenomena, such as "el nino."

Other important uses are given primarily in the fields of cartography, geophysics and forest mapping. Thus, based on ERS-1 data a radar chart of Germany will be established, calculations of the actual form of the earth will be undertaken and the tropical rain forests mapped. Since even a heavy cloud cover is no obstacle to the radar sensors of the ERS-1, comprehensive area coverage will be obtained.

Due to the combined analysis of satellite images in the visible, infrared and microwave regions and a series of digital auxiliary data, the application spectrum will range from detecting local environmental damage (oil pollution of the sea), to regional phenomena (dying forests), even as far as global monitoring. This opens up new perspectives for ecological studies, which cannot be undertaken with conventional methods.

The multitude of radar image data which the ERS-1 can deliver during one orbit will be so large that it cannot be stored on board. For this reason a worldwide network of ground receiver stations is necessary. One of these stations will be in Antarctica. The building, coordination and operation of the receiver station is to be done by the DLR. Thus, the entire hardware integration is being undertaken in Oberpfaffenhofen at this time. This is followed by a "dress rehearsal," in which data reception from the NOAA and SPOT satellites will be tested. The station in the north of the Antarctic O'Higgins peninsula will be built in the winter of 1990/91. From this receiver station the ES-1-SAR data will be transmitted to DLR in Oberpfaffenhofen. Here, a Processing and Archiving Facility (PAF) is being built, in which the raw data will be processed into pictures that can be evaluated and made available to users. The data will also be systematically archived for subsequent application purposes.

On the German side, the participants in addition to the DLR are the Alfred-Wegner Institute, the Institute for Applied Geodesy and the German Geodetic Research Institute as well industry, with the Dornier-System as the principal contractor. Besides the German PAF, Processing and Archiving Facilities will be established in

Great Britain, France and Italy. The Mission Management and Control Center (MMCC) in ESOC [European Space Operations Center] (Darmstadt) will head the satellite operation.

Swedish-German Windmill Project Outlined

91AN0006A Brussels EUREKA NEWS in English
19 Sep 90 pp 14-16

[Article: "A Look at the EUREKA Energy Sector: 'Traditional' and 'Alternative' Ways"]

[Excerpt] [Passage omitted]

Project EU 371 Aeolus II: The Wind of Change in the Baltic

Early next century, a little archipelago of artificial islands could be springing up in the Baltic to help fill the energy gap left by Sweden's recent renunciation of nuclear power. For these islands could be the perfect place to put the largest windmills in Europe. With massive blades 80 metres across, these giants will pump out over 3 megawatts—enough to heat a thousand rooms.

This futuristic idea is at the basis of the Aeolus II project (EU 371), a Swedish-German partnership between Kvaerner Turbin AB and Messerschmidt-Boelkow-Blohm (MBB) aiming to manufacture a series of windmills which are not only larger, but lighter and quieter than their predecessors, and which can harvest the wind to maximum effectiveness.

At present Sweden relies on nuclear power for half its energy requirements, but following the controversial referendum decision to phase out nuclear power by 2010, has been more and more actively investigating renewable energy. "Today, we feel that wind energy is offering very interesting prospects," says Goeran Svensson of Vattenfall, the state power board. "We are supporting the development of the technology, but in the end will be buying energy on commercial criteria. Our guess is that in the long run the cost will fall, and factors such as the proposed fossil fuels tax will alter the ground rules as well. But uncertainties as to interest rates and equipment lifetimes make cost estimates difficult—no-one has yet operated a modern wind turbine for long enough to make safe predictions."

The Biggest Blades in Europe

The giant mills of Aeolus II are a development of the 2-megawatt turbine built in 1983 at Nasudden on the island of Gotland, which lies off Sweden's eastern coast. Kvaerner Turbin AB, based at Kristinehamn, midway between Stockholm and Oslo, teamed up with a renowned German plane maker (MBB) to design and source that mill's 75-metre steel and glassfibre blades, and the mill gave over 11,000 hours of service to the grid before metal fatigue set in. Now MBB has developed a steel-free blade which is lighter and stronger than any so far developed. Using carbon fibre and glass fibre, they

have managed to produce a blade which, despite its maximum width of 4 metres, weighs in at a mere 8 metric tons—two fifths the weight of its predecessor. The lighter blade is both quieter and much easier to erect.

The project will build two prototype mills of slightly different designs. The first will go into service at Wilhelmshaven near Bremen in late 1991, sporting a totally variable blade speed. The second, destined to replace the old Nasudden I mill, will operate at either of two fixed speeds—14 or 21 rounds per minute. This dual design philosophy will allow a comparison of noise, which is dependent on blade tip speed, to be made. A sophisticated computer control system will orient the turbine to the wind, monitor operation, and send the alarm to a distant control centre if anything goes wrong. A double winding generator will allow a smooth output at a constant 1,500 Hz and 6 kV despite windspeed fluctuations.

The electrical and hydraulic machinery is mounted on the mast, and connected to the blades via a bevel gear, which not only keeps the total rotating mass down to 35 tons, but avoids the use of unreliable slip rings or flexible cables. Taken together, the innovations mean Aeolus will produce 50 percent more energy with 25 percent less mass of machinery. Annual output could be as high as 7.3 gigawatt-hours.

For the moment, Kvaerner Turbin is looking at the home market for the Aeolus II windmills. There is an initial plan to build five third-generation windmills on Gotland for commissioning around 1996. After that, perhaps the study of offshore windmills currently under way will lead to a hundred new islands off the Blekinge coast.

Environmental Monitoring Role Seen for Planned Amphibious Aircraft

90MT0365X Rome AIR PRESS in Italian 12 Sep 90
p 2056

[Text] Aeritalia still leads the Advanced Amphibious Aircraft (AAA) program with a 56 percent share. Other participants include Dornier (FRG), HAI-Hellenic Aerospace Industry (Greece), Per-Udsen (Denmark), and Soko (Yugoslavia) while according to rumors at the Farnborough exhibition, Aerospatiale may also become involved. The AAA's industrialization and marketing cooperation agreement was signed by the five partners in London on 3 September. The first prototype will be ready to fly by mid-1995 while certification and deliveries are scheduled for late 1997.

Other partners are currently being sought and priority is being given to EEC companies to preserve the "European" nature of this project, which falls within the wider EUREKA [European Research Coordination Agency] research program. In 1988, EUREKA funds were allotted for a technological definition stage which ended last April. On 1 June, additional EUREKA funds were allocated for a second research stage also lasting two years. This stage is expected to cost about 12.7 million

ECUs and will include research on aerodynamics and hydrodynamics, new structures and materials, anticorrosion techniques, innovative hull design to ensure takeoff and landing even in very rough sea conditions, and avionics and advanced equipment to improve the safety and performance of the mission.

The aircraft will perform various functions that are currently carried out by aircraft whose design is outdated. These functions include patrolling, ecological sea surveillance, environmental monitoring, search and rescue operations, and fire fighting, which is the activity that draws the greatest attention.

The AAA project was presented by the director of Aeritalia's Transport Aircraft Group, Engineer Nino D'Angelo. The need for this type of aircraft is estimated to be 200 by the year 2000, but its versatility and the growing importance of "environmental" missions are likely to lead to a considerable expansion in a market which appears to be dominated by Europe (36 percent) and the Middle East (33 percent). The greatest demand is expected to be in fire fighting (44 percent) and search and rescue operations (23 percent).

FRANCE

Government's Handling of Bouchet Nuclear Dump Issue Scored

90WN0301A Paris LIBERATION in French 6 Sep 90
p 37

[Article by Guy Benhamou: "Memory Lapses Concerning Nuclear Waste Site"—first paragraph is LIBERATION introduction]

[Text] A wave of panic at the Atomic Energy Commission [AEC]: As its nuclear waste dump near Paris gives off alarming radioactive emanations, it is unable to draw up an inventory of its contents. Radium? Thorium? Maybe. But where in heavens can the file have gone to?

Disorder reigns at the AEC's nuclear waste dumps. To the point where, today, AEC officials are jogging the memories of retirees in an effort to determine the contents of the 20,000 metric tons of waste stored for the past 20 years at the Bouchet site in Essonne, some 50 kilometers from Paris. To all appearances, an innocuous dump, with its piles of rubble and its shrubs and small trees, protected only by wire fencing. But recently, local environmental associations detected abnormal radioactivity in the dump's immediate vicinity and brought the matter before a court as the AEC prepared to cover the site with a thick layer of clay. "An abnormal amount of radon, a radioactive gas, is emanating from this dump," say the associations. The CRIIRAD [Independent Regional Investigative Commission on Radioactivity] independent laboratory, which carried out the analyses, reports peaks of 14,000 becquerels per cubic meter of air at certain points outside the site, in zones that are perfectly accessible to the public. [The becquerel (Bq) is

the International System unit of activity of a radionuclide, equal to that of a quantity of radionuclide having one spontaneous nuclear transition per second]. "It stands to reason," the environmentalists point out, "that the radioactivity within the site itself is much higher than that." Information leaked by AEC sources indicates measurements of more than 30,000 becquerels per cubic meter of air. Existing standards concern only living quarters, limiting them to a range of 200 to 400 becquerels. The average value in the Paris region is between 15 and 20 becquerels.

The AEC at first challenged the findings, claiming, for its part, 450 becquerels, but later acknowledged "several thousand." It was unable, however, to provide exact figures. And for good reason: According to sources in the AEC, the measurements were made somewhat hastily. No mapping of the site whatever was made. Worse yet, two different services worked concurrently: One under the SPR [Radiation Protection Service] at Saclay, the other under the IPSN [Institute of Nuclear Protection and Safety] at Fontenay-aux-Roses. But they used different techniques, making any comparison between their findings difficult.

Furthermore, radon is but the radioactive emanation of another element: Radium. It is a natural content of uranium ore, and not being recovered during the extraction, it is found concentrated in the residues. According to the AEC, the Bouchet dump contains some 20 grams of radium; but the environmentalists put the content much higher and emphasize its high level of toxicity. "The fact is," says Philippe Veysseron, assistant to the director of the IPSN, "that there was a decantation basin for liquid wastes: The insoluble components were dumped there; the rest flowed into the river." A sizable part of this radium may have followed the latter route, and the CRIIRAD has begun an analysis of the sediments and surrounding vegetation.

While the accounting for the radium content clearly leaves much to be desired, information concerning the other elements contained in the dump is even more fluid. Thorium, for example, another derivative of uranium, is also being checked for. Some of the ores processed at Bouchet, such as uranothorianite from Madagascar, contained sizable quantities of it. According to some sources, the thorium of a very high grade of purity was shipped to the United States. According to others, former engineers at Bouchet, this thorium was reshipped to Cadarache, another AEC site, near Marseille, or stored in piles above the dump.

The higher-ups are scarcely aware of the confusion that reigns with respect to the documentation of this operation. Philippe Rouvillois, the AEC's head of administration, intends to intervene as soon as he has closed the

FRAMATOME [Franco-American Atomic Construction Company] case, and High Commissioner Jean Teillac is pressing his assistants to come up with an accurate set of records. In the corridors of AEC headquarters paranoiac comments hint at a large-scale environmentalist plot, seemingly oblivious of the virtual lack of mobilization activity at the site itself. Of the 11,000 inhabitants of the three communes around Bouchet, it is difficult to find even one who seems really concerned. This is evidenced by the rally mobilized on Monday 27 August to protest against the work being done at the site: Some 12 inhabitants turned out.

It is hard to believe that the AEC would have allowed itself to be caught napping in this matter. The site under attack was used from 1956 to 1971 for the storage of solid wastes and ore-processing muds.

Operation of the Bouchet site is normally a function of the AEC center's directorate at Saclay. Since 1971, however, the successive directors were zealous about doing nothing in its regard. It took the need for rehabilitation of the terrain, which arose only last year, with the imminent expiry of the AEC's lease, to draw public attention to the site. "Why did it have to take so long?" asks Philippe Veysseron, as do many others. Besides covering over the waste, the rehabilitation project called for controlling access to the site and limiting its future use. For example, laying of foundations would be prohibited. "This rehabilitation," the AEC explains, "will help reduce the radon emissions as well as the radiation." But Essonne's Greens have their deaf ear turned to it. They want to know exactly what is buried over six meters deep and throughout an area of over 10,000 square meters at Bouchet. They are also raising questions as to the permeability of the terrains, which are especially marshy in this area. The drought of the past two years is undoubtedly the cause of the increase in the environmental radioactivity. The radon, which is particularly soluble in water, would otherwise have been dissipated in it. The drying up of the terrain could have augmented the activity detected. Be that as it may, the Greens have decided to bring suit for infraction of the public health code, and the examining judge in the case has ordered the AEC to desist from further action on the project. The prime minister, alerted by members of Parliament, has intervened in the same sense this week by way of a letter addressed to the AEC. The government is looking beyond the problem of this particular dump, toward the decision it will very shortly have to make on the future disposal of the nuclear industry's waste. The choice of a burial site capable of accepting the radioactive waste of our nuclear power plants spawned very violent demonstrations last year. And Michel Rocard intervened personally and suspended all work for a period of one year. The AEC's current inability to settle the modest Bouchet problem is scarcely encouraging for the future.

Creation of Environmental Agency Likely

90WN0301B Paris *LIBERATION* in French
15-16 Sep 90 p 195

[Article by Helene Crie: "Environment: Calendar Set for Super Agency"—first paragraph is *LIBERATION* introduction]

[Text] The creation of a French environmental and energy conservation agency now appears imminent. The bill being prepared at the Matignon [Prime Ministry] could be deliberated on by the Council of Ministers around the end of this month.

The secretary of state for the environment is radiant: His budget has been increased by 43 percent. This governmental decision augurs well for the National Assembly's debate on the National Environmental Plan, scheduled for 9 October. But Lalonde is saving the big flag-raising ceremony till later: Not only is the Parliamentary debate almost certain to further modify these budget figures, depending on whether or not it results in enlargement of his ministerial department, but, above all, Lalonde looks forward to an exciting announcement that the president of the Republic is expected to make: Around the end of the month, Francois Mitterrand could give France a French Environmental and Energy Conservation Agency.

The Administration's first seven-year term saw the birth of the AFME [French Energy Conservation Agency]. The Elysee is anxious to chalk up a new first. Revealed by *LIBERATION* in its 28 August issue, this bill was concocted in relative secret by Michel Rocard's cabinet. And this to the great displeasure of the three agencies presently responsible, respectively, for [industrial] waste disposal (ANRED), for air quality (AQA), and for energy conservation (AFME), in that, although the bill calls for merging them into a single governmental agency, the personnel of the three agencies were not priorly consulted.

In less than three weeks, the bill has reached an advanced stage. The Council of State, to which Michel Rocard's services have submitted it, has given it a green light. The AFME's principal ministerial overseer—the Ministry of Industry (together with the Ministry of Research)—no longer opposes this reform, and examination of the documentation by the Council of Ministers has been scheduled tentatively for 26 September.

For their part, the government employees concerned have decided to give the bill a public airing: Thursday, at Berder, department of Morbihan, during the European Summer Seminar on the Environment, a large delegation of "Transformeurs" [waste transformers]—[actually] personnel of the ANRED—requested a meeting with the minister, and voiced a strong protest against the super agency, fearing that, despite a "purely formal" joint-oversight role together with the Ministry of the Environment, it will end up under the sole control of the Ministry of Industry.

On the other hand, a well-conducted reform would increase significantly the clout of the environmental activists. As they see it at present, not only is none of the three agencies really able to successfully carry out a research program, but above all, none is able, alone, to develop its industrial applications. This is the principal argument put forth by supporters of the bill, who are to be found essentially within the sphere of influence of...the AFME. The others fear, perhaps legitimately, being crunched by this mega-structure.

Brice Lalonde is being extremely cautious with respect to a bill that he did not help originate. "I am not interested in an announcement that is purely a statement of policy. This shell will simply have to be filled, meaning that the necessary funds must be allocated to it to enable its implementation." In other words, the Administration and the Parliamentary deputies will have to agree to fund the cost of environmental protection, undoubtedly through special levies, particularly on waste. Another point, dear to Lalonde's heart, has to do with the placing of energy conservation under the Ministry of the Environment (it being understood that conservation in its comprehensive sense entails a reduction of pollutants).

If these conditions are met, the administrative form of their implementation is of little concern to Lalonde: "The essential thing is that the conservation of energy and the management of air quality, waste disposal, and water resources be coordinated." But in fact, water is not included in the package that has been prepared by the Matignon. "The bill must at least provide for regional delegations in on-the-spot contact with the terrain, with comprehensive responsibility for all aspects. Otherwise, it will be absurd." The bill in its present form has not yet resolved the problem. Does this mean, therefore, that Lalonde will oppose it? Even though the decisional calendar is extremely tight, the wording of the bill can still undergo changes.

A question of fit remains: How could this agency carry the designation "environmental," with Industry as its cosupervisory ministry? As the "Transformeurs" point out, "Environment and Industry obey different reasons for being, indeed opposing ones, and the bill will inevitably lead to a predominance of one over the other." In the current economic context, it is not difficult to predict which.

Another problem, an even more hopeless one, is in suspense: Already, names are circulating as to the future president of the agency: Huguette Bouchardeau, Alain Carignon, both former ministers of the environment? Michel Barnier, RPR [Rally for the Republic] deputy and author of a report on the issue? Michel Roland, former president of the AFME? Lucien Chabason, author of the Green Plan? All are potential candidates capable of transforming the agency into a powerful vice ministry of the environment. Lalonde would hardly appreciate this.

Agency for Environment, Energy Conservation Created*91WN0033A Paris AFP SCIENCES in French 4 Oct 90 p 37*

[Unattributed article: "Creation of a Major French Agency for the Environment"]

[Text] PARIS—Announced on October 3 in the Council of Ministers by Brice Lalonde, the plan to create a major French agency for the environment and energy conservation will result in a single entity for air, waste, noise, and energy control policy. Water, however, is a significant omission in the new agency.

The idea of merging the ANRED (Agence Nationale pour l'Elimination et la Recuperation des Dechets) [National Agency for Waste Disposal and Recovery], the AQA (Agence pour la Qualite de l'Air) [Air Quality Agency], and the AFME (Agence Francaise pour la Maitrise de l'Energie) [French Energy Control Agency] was initiated by the services of the Prime Minister to the great surprise of all, even the Secretary of State for the Environment, and gave rise to considerable concern and controversy.

Some, particularly at the ANRED, feared being "sucked up" by the powerful AFME, while others were dismayed at such haste in a matter that had been a last-minute addition to the discussion of a National Plan for the Environment.

It was difficult, too, to select the trustee ministry for the major new national agency, between Industry, which up to then had overseen the AFME, and Environment, which was the sole trustee for the other agencies. In the end, Michel Rocard logically placed it in the hands of Environment, giving that sector majority representation in the Administrative Board. Industry will continue to be a trustee, but Environment, it is said, will be "preeminent".

The new agency, which also includes the Noise and Soil Observation services and whose headquarters has not yet been determined (Poitiers was discussed), will have a staff of 600 and a budget on the order of a billion francs. The waste sector, which had been suffering from a lamentable lack of funding, will be boosted by financing from "ecological taxes" that remain to be defined. In addition, collaboration will have to be ensured with the six basin agencies that will continue to have an exclusive hold over water resources.

GERMANY**Citizens' Initiative Against Nuclear Waste Disposal Site***AU0811160190 Berlin DER MORGEN in German 6 Nov 90 p 2*

[ADN report: "Citizens' Initiative Against Nuclear Waste Disposal Site"]

[Text] Haldensleben—On Saturday [3 November] a citizens' initiative against the operation of the nuclear waste

disposal site in Morsleben was founded in Haldensleben (Saxony-Anhalt). In an emergency motion, lawyer Claudia Fittkow filed a complaint for the closing of this site at the Magdeburg Bezirk Court and the Federal Constitutional Court.

According to environmentalists, the subterranean disposal site is the only authorized storage site for nuclear waste in Europe.

VAX Computer To Aid Halle Environmental Protection Efforts*91P60027P Berlin RECHENTECHNIK-DATENVERARBEITUNG in German Oct 90 p 2*

[Text] Digital Equipment GmbH released a VAX computer to the State Environmental Inspection Agency of the Halle District Council. With this initial nonbureaucratic gesture, the firm wants to provide know-how and a device for helping the environmentally worst hit district in the [former] GDR to solve the environmental problems facing it. A cooperative agreement for putting together an environmental data system for both the city and district of Halle is being prepared. Among those participating in this initial symbolic transfer, within the framework of launching Digital Equipment's new branch office in Berlin, were the head of the State Environmental Inspection Agency, Manfred Klima; the inspection agency's computer sciences chief, Wolfgang Becker; the mayor and department head of the city of Halle, Dagmar Szabados, and Secretary of State Dr. Gerhard Behrend, from the GDR's former Ministry of the Environment. According to Digital Equipment GmbH, the Halle action is but a first step, since other projects are planned in Saxony, in Hungary, the CSSR and Poland.

Buna Chemical Plant Still Liable for Pollution*91WN0016A Dresden SACHSEN-SPIEGEL in German 14 Sep 90 p 3*

[SACHSEN-SPIEGEL interview with Dr. Karl-Hermann Steinberg, GDR environment minister, by Steffen Koenau, in Buna; date of interview not given: "A Haze of Carbide Dust Lies Over the Land: The Ailing Chemical Giant Buna Is Waiting for Its Rehabilitation"; first nine paragraphs are SACHSEN-SPIEGEL introduction]

[Text] "Erich always came by car," mumbles one of the curious onlookers as Karl-Hermann Steinberg, Minister for Environmental and Nature Protection, Energy and Reactor Safety in de Maiziere's cabinet arrives in a helicopter with deafening noise. Although it was originally understood that the prime minister himself, during a short visit, wanted to survey the present condition and initial progress in the rehabilitation of the ailing chemical giant, there are not too many people here to watch Minister Steinberg as he lightly and briskly jumps from

his helicopter and immediately sees himself surrounded by the mob of reporters who were actually expecting to see de Maiziere.

At that very moment, twenty meters away and relatively unnoticed, two particularly well or poorly trained young Diestel policemen drag away from the improvised off-limits area Mrs. Mueller, the locally well-known NF [New Forum] activist and clergyman's wife. "One year ago she would have ended up in jail," comments one of the journalists. Yes, and six months ago no policeman in the country would have dared to act like this. Who is to say whether this is a good or a bad sign now?

Flags Flying in Honor of Guest

Anyway, Steinberg leaves with cameras in pursuit accompanied by Buna manager Saalbach and his assembled executive suite. The buses for the plant tour are waiting.

Buna, or rather, the Buna AG, is flying flags today in honor of its guest. Yet without much success. The production buildings and chemical plants look all the more shabby and drab, a light haze of carbide dust lies over the land.

"Not as much any more," comments the environment minister with a sidelong glance at the two carbide stacks. The left one still emits a thin trail of smoke, the right one is already completely inactive.

Karl-Hermann Steinberg, the CDU [Christian Democratic Union] man, knows what he is talking about, after all for 31 years he has been living less than four kilometers from here on the outskirts of the town of Merseburg. The 49-year-old man takes personal credit for the fact that the reduction of carbide production in Buna has been started. Soon only 2,000 metric tons of dust annually will remain of the previous 44,000 tons per year; 1993, at the latest, will see the end once and for all of the expensive and dirty carbide and acetylene chemical industries.

Of course, in spite of extensive rationalization safeguard regulations in the wage agreement for the chemical industry, the concern about jobs prevails in Buna as well. At risk are 18,000 jobs, but "we shall be able to preserve ten to eleven thousand" is Steinberg's optimistic view.

Indeed, giving encouragement seems to be his main function here: "This autumn was a time for courage," the former Merseburg town councilman and full professor at the Leipzig university calls out to the assembled Buna workforce, and "let us overcome the new challenges with equal courage!"

Before this occurs, short working hours and early retirement are to make more socially palatable the lean times from planned-economy cooperative to a company capable of competing on the market; "cushioning," no "I

don't like that word" (Steinberg). We had the opportunity to speak with Karl-Hermann Steinberg during his Buna visit.

An Extremely Stressed Region

[Koenau]: Mr Minister, would you agree with the assessment that the Halle/Merseburg/Leipzig region is an environmental distress, crisis, or even catastrophe area?

[Steinberg]: With respect to environmental pollution it certainly counts among the most severely stressed regions in the GDR. But I would not call it a disaster area. In that case, 30 or 40 percent of the GDR would have to be declared a disaster area. By the way, I am already familiar with such applications and inquiries from Bitterfeld where they are asking: Couldn't every resident receive 200 marks more for living in such an ecologically distressed area? But to tell you honestly, I would rather inject these monies in quick rehabilitation measures for the environment than into the population's pay envelope. For health cannot be bought with money! One can only change things quickly so that health is no longer endangered. No doubt the population and voters will take action if the government goes back on this promise. The voting results on 14 October will demonstrate this.

[Koenau]: You told the employees that you were very hopeful with regard to the Buna plant. In your view, wherein lies the chance for this operation which, after all, looks quite run down at first glance?

[Steinberg]: Buna's chance lies in retaining the efficient production of end products—cold rubber, PVC [polyvinyl chloride], and a few others. These are efficient today and up-to-date. In fact, they are so up-to-date that it is possible to grant licenses to progressive nations. I see another opportunity in trimming down, namely in closing those productions that strain the ecology, which usually also happen to be the ones that are in the red. And that the personnel employed there be transferred to the new production operations—some of which have to be newly erected, others retrofitted—or be retrained for a totally different activity. Of course, this will temporarily result in shortened working hours and dismissals. Certain dismissals are inevitable even, given the fact that of 18,000 employees here at the Buna plant 8,000 do not work in chemical production. This is true, by the way, for many other chemical operations.

[Koenau]: You also mentioned money and that it was important to make capital investments. But who shall provide the money?

[Steinberg]: First let, me say that Buna's capital equipment inventory amounts to six billion marks. This means, the existing plant is worth about six billion marks at present. That certainly is a capital against which loans can be taken out, it can serve as guarantee for credits. Buna therefore has a certain regenerative power of its own.

But there will also be structural adjustment assistance from public funds, of course. Just as this will be available for the other, I'll use the expression, "ecological problem areas." This includes Kreis Bitterfeld, the Halle-Merseburg region, the upper Elb valley, the region south of Leipzig, Borna-Espenhain.

[Koenau]: Give us a concrete example.

[Steinberg]: FRG companies will invest considerably in the rehabilitation of the Buna plant in particular. Letters of intent, but also agreements have been signed already, which indicate that large chemical companies as, for example, the subsidiaries of the VEBA [Vereinigte Elektrizitäts- und Bergwerks-A.G.] concern and the Chemische Werke Huels expressed their willingness.

[Koenau]: It appears that the rehabilitation concept submitted by Buna company management has met with the government's approval. Does this mean it will support the project?

[Steinberg]: As you know, Buna produces considerable environmental pollution. And it is my responsibility [to see] that the rehabilitation concept also conforms with the stipulations of the environmental framework law. For the remainder, company management is responsible for its own decisions, of course. That is the way it is in a free market economy.

As to the public subsidies, that is in the realm of the government. Here the ministry of economics has to participate. Mr. de Maiziere has also made inquiries about this, has reviewed the current negotiation results and decided to support this concept. And I, of all people, as environment minister, am definitely in favor of it, for this terrible environmental pollution must be eliminated very quickly.

[Koenau]: Does the all-German government, which soon will have to decide about the continued progress, share the same view?

[Steinberg]: On several occasions I have met with my colleague, Mr Toepfer, and discussed this matter. Perhaps you know that this diaphragm technology for chlorine-alkali electrolysis to produce chlorine and caustic soda solution here at the plant was originally on the list as a pilot project and was supposed to be subsidized with DM100 million. This money, which had actually already been approved in the budget committee of the Bundestag, will now—because the basic economic conditions have changed—be made available as assistance for oxichlorination to produce, in a nonpolluting high tech manner, vinyl chloride; this can then be further processed in the existing production facilities here. Nothing has been decided yet, but I think we shall have about DM135 million for this.

[Koenau]: Mr Minister, you yourself have been a long-time resident of Merseburg, only three trolley stops from here. What thoughts and sentiments accompany the

environment minister who, after all, is in a position to do something about the destruction of the environment?

[Steinberg]: For me this is simply a happy day. I live three and a half kilometers from here, and yes, I do see the dirt myself. When the wind is right I have the filth from the carbide stacks on my window sills. I feel very gratified by the fact that something is finally going to happen here. And to have a solid concept that at the same time preserves jobs is equally gratifying. Because if we do not preserve jobs, we cannot finance the rehabilitation! And there is an urgent need to clear the pre-existing toxic waste! After all, we cannot allow a time bomb to tick away here.

Removal of the Pre-existing Toxic Waste

[Koenau]: Right, the pre-existing toxic waste; how shall this be settled? Herrmann Rappe, Chairman of IG Chemie, advocates that the state assume the expenses so that investors won't be deterred?

[Steinberg]: The question of pre-existing contamination can only be addressed separately for each individual site. However, upon the future investor's application to the environment minister we make the obligatory removal optional. This is backed up by our environmental framework law. The investor has until 3 October to submit his application to me. Otherwise we proceed from the assumption that the removal of pre-existing toxic waste is the joint responsibility of the Land, the community, the industrial operation, and the investor. After all, all four have a stake in this. The company and the future investor have a financial interest that this happens swiftly in order to build on a clean site. The community is interested in preserving the structures, for they are the taxes of tomorrow! And the Land shares this same interest.

But it is by no means true that every facility is so severely contaminated. In case of the carbide factory here in Buna, for example, there will not be a problem, while it is a different story with the aldehyde factory. When it is torn down, mercury contamination must be properly disposed of. But we will succeed. Other places succeeded. The question is how quickly we succeed!

[Koenau]: During your remaining time in office as the last GDR environment minister, which problems would you still like to solve?

[Steinberg]: As you know, we have resolved the environmental framework law in which my ministry was intensively involved. Of course, we want to enact this now. We shall realize the short-term measures resolved by the government commissions—meaning the shutdown of the manufacturing operations that are the worst environmental polluters. For example, the carbo-chemical industry, that is Espenhain and Bitterfeld-Wolfen, where during 1990/91 about 39 plants are to be completely or partially shut down.

But we shall also continue to work on price policies and legislation. In the near future I shall introduce the ordinance for deposits on non-returnable bottles. A deposit will be paid for soft drink cans and disposable bottles between 0.2 and 3 liters, which will then have to be taken back by the stores. The repurchase can also involve a third party, Sero [recycling company], for example. This would provide a type-specific collection and at the same time the possibility of properly recycling this raw material. I just received a letter from the FRG brewery industry—we are talking about 2,000 brewers and retailers. They are glad that in this way the constraint for returnable bottles is finally being introduced, rather than the bad example of the FRG. It is likely that we will run into difficulties with the EC—but we must stick it out.

ITALY

Environmental Research Center Established in Milan

91MI0015A Milan *ITALIA OGGI* in Italian
29-30 Sep 90 p 19

[Text] Italy too now has an Ecoresearch Institute. It is called "Ambiente Italia" [Italy Environment] and Milan was selected as its headquarters. The new research institute was founded by some of the most prestigious members of the Environmental League's scientific committee. The president of the league, Ermete Realacci, explained: "It is a nonprofit association that will rely primarily on an environment-oriented clientele asking for services."

The initial intention is to put the experience of technicians in the sector to good use by offering consulting services to committees and associations, unions and political groups, public institutes and private companies.

One of the promoters, Maria Berrini, stated: "Two research projects have already been completed. The first was commissioned by the Ministry of the Merchant Marine to identify the possible causes of the proliferation of algae in the Adriatic sea, and the second on behalf of the Ferruzzi group, on methods for recuperating polluted areas." This latter issue is of extreme interest when considering that, in recent years, approximately 50 percent of public spending in the United States for the environment has concerned programs for the recovery and economic reactivation of highly polluted industrial areas.

Despite a low initial budget (approximately 150 million lire), the research institute has already started up a series of activities on its own. Studies under way include: strategies to limit the greenhouse effect, the preparation of "environmental plans" at the city level, reducing electric energy consumption in the civil sector, and drawing up "environmental profiles" of industrial activities and goods. Once concluded, the surveys will be published in the editorial series "Ambiente Italia."

Another founding member, Mercedes Bresso stated: "Some permanent observatories have already started such as those to evaluate public expenditure, documentation on the evaluation of environmental impact, Italian intervention in Eastern Europe, biotechnology and artificial reproduction techniques." The establishment of an "association of collaborators" open to researchers who want to take part in the initiative, will then permit us to lengthen the list of the association's activities.

This is not all however. Thanks to collaboration with similar structures on an international scale, and with national universities and research institutes, the principal objectives of "Ambiente Italia" also include the collection, electronic processing, classification, and dissemination of all existing data on the environment.

"By the end of the year," promised Relacci, "we will have a substantial amount of information on Italy." This contribution is of extreme importance, given the lack of information currently available to local administrators and even the government. The Minister of the Environment, Giorgio Ruffolo, has admitted several times that it is precisely the lack and nonhomogeneous nature of scientific information on the air, water, and land which is perhaps the greatest obstacle encountered by experts in the ministry when launching initiatives against decay and pollution.

NORWAY

Database Including Pollution Information Established

91WN0038A Oslo *AFTENPOSTEN* in Norwegian
17 Oct 90 p 3

[Article by Jan Gunnar Furuly: "Environmental Bombshells Collected in Data"—first paragraph is AFTENPOSTEN introduction]

[Text] Norway's environmental bombshells are now being collected in a database of their own. All contaminated lands and all storage sites for special wastes here in our country will be included in a survey being made by the Norwegian Geological Survey [NGU].

"The new database will play an important role in the efforts made by the National Pollution Inspectorate [SFT] during the 1990's to clean up waste storage sites. The survey will be a very valuable working tool, not the least when setting up a priority list of the places that have to be done first," says senior engineer Harold Solberg of the SFT chemical and special waste section.

The SFT and the Ministry of Environmental Affairs have been the tasking authorities for the NGU which, together with seven consulting firms and the environmental affairs sections under the provincial governors, has been working on the mapping project since 1988. The first provinces to be investigated were Buskerud and

Vestfold. They were followed by Ostfold, Oslo, Akershus, Telemark, Rogaland, and Hordaland. The final eleven provinces have been examined over the course of the past year.

NGU project coordinator Arve Misund calculates that the final reports will be ready at the beginning of December. For the time being, Misund does not want to give out concrete results from the investigation, since a part of the survey materials still remains to be processed.

"What we can say at the moment is that the results are no worse than we had expected. Locally, the environmental problems can be serious, and there is a clear connection between heavy industry and pollution," he says.

The forthcoming database gives a broad overview of the presently known collection sites for environmental waste, but hitherto unknown waste sites have also been uncovered. Areas have also been discovered where chemicals and other poisons have leaked and seeped into the earth. Among other ways, the new information has surfaced in the form of telephone tips from the public.

"We do not think that we have succeeded in bringing everything to light. Therefore, we continue to be grateful for tips from people who believe they know about polluted areas, buried special waste, and the like," says Arve Misund. The environmental affairs sections under the provincial governors can be contacted, or people can also call the SFT's green environmental tips phone at 050 31 500.

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